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SASKATCHEWAN WHEAT POOL

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FOREWORD

By the President of Saskatchewan Co-operative
Wheat Producers Limited

The Saskatchewan Wheat Pool is pleased to present this report covering the results of the 1938 *Wheat Variety Testing Project.*

This is the fourth Province-wide testing programme sponsored by the Organization and conducted in co-operation with the University of Saskatchewan and the Dominion Experimental Farms and Stations. It is, perhaps, the most important. Consisting of eight varieties, including the three rust-resisting wheats, Thatcher, Apex and Renown, and with nearly every major destroying agency affecting Saskatchewan's 1938 *wheat crop, the project produced most valuable data in connection with the reaction of the different varieties under severe conditions of both rust and drought.*

The retention of Canada's place in the wheat markets of the world depends upon the quality of the product she has to offer. Any new wheat variety must not only be able to withstand severe climatic conditions or the ravages of disease but must also produce good returns of high quality. Province-wide testing projects such as those sponsored by this Organization enables the gathering of exhaustive data on new varieties in a rapid and complete manner, thus, not only furnishing valuable information to our plant breeders, but also keeping our farmers informed of the best varieties for use in the different parts of the Province.

The project this year consisted of 333 *tests with common wheats and* 15 *tests with durum wheats. Each test is a scientific experiment in itself. The laying out, sowing and conducting of the tests is indeed a task which requires considerable care and attention. The success of the experiments is entirely due to the interest and efforts of the Junior Co-operators who undertake this work. To all of them we again offer our sincere thanks.*

J. H. WESSON.

INTRODUCTION

LONG before the veil of history lifted, early man had found that the small fruit of the wheat plant satisfied his hunger, and realizing the value of this food supply attempted its cultivation. While the time of its first use as a food or the date when cultivation began will never be established, the antiquity of wheat is unquestioned. The presence of the cereal in the habitations of the earliest Swiss Lake dwellers is mute evidence of its use even in those prehistoric times; these people of the neolithic period are known to have cultivated at least four different species of the genus Triticum (a member of the grass family).

Perhaps in this early age the plant was not immune to disease. Certainly at the beginning of recorded history, cultivation was fraught with many of the difficulties and uncertainties which beset our farmers today. Crops of great promise withered and died, and the early agriculturalists, failing to understand the reason for the catastrophes which befell them, looked to their priests for succour. Realizing the necessity of pacifying the harassed populace the priests interpreted the wishes of the gods and instituted the proceedings necessary for their appeasement. It sometimes happened, however, that the existing deities did not possess the powers required to prevent a recurrence of a calamity but this deficiency did not deter the wily priests. Exercising their inventive powers they merely brought into existence another supernatural being to meet the exigencies of the occasion. Thus we find that in 496 B.C. * when the crops of the ancient Romans had been destroyed by drought, a deity was required whose powers would prevent another calamity of this nature. Reference to the Sibylline books revealed that the Greek goddess Demeter had left to mankind the gifts of wheat and agriculture and it was decided that the cult of this goddess should be brought into Rome. It was essential, however, that this new and powerful deity should be purely Roman and to accomplish this transformation the Greek name "Demeter" was discarded and the deity renamed "Ceres". As the goddess of agriculture Ceres demanded the act of worship and the celebration of festivals. In order that these could be carried out in a befitting manner a temple was erected in her honour where two important festivals were held each year. One festival was held in April, and the other in August. At the first a sow, symbolic of productivity, was offered as a sacrifice and at the latter, in thanksgiving for the crops which had been reaped, the first fruits of the harvest were proffered to the goddess.

The early Romans, however, found that even their oblations to Ceres did not always ensure a bountiful harvest. Although in the spring their crops often gave promise of goodly yields, later they withered under the ravages of rust. Among the many deities worshipped by the ancients was the Rust god, Robigus. This powerful spirit could, if he so willed, restrain the development of the dread disease. It was, therefore, necessary that he should remain appeased, thus annually on the 25th of April the feast, known as the Robigalia, was celebrated. This date, which marked the time when the rust scourge usually attacked the crops, was an appropriate one to secure his appeasement. The ceremony was indeed impressive. Clothed in spotless white, the people gathered in Rome and marched in procession along the Claudian Way to the fifth milestone. There in a sacred grove, the high priest, surrounded by the white-clad gathering, took his place beside the altar. Prayers were offered to the Rust god, to save the crops, wine was poured upon the altar, incense was cast upon the flames and the entrails of a sheep and of a yellow dog were placed upon the altar and burned, the colour of the dog being symbolic of the disease it was hoped to avoid.

More than two thousand years have passed since the ancient Romans besought the favours of Ceres and Robigus. The broom of civilization has swept aside the superstitions of the ancients. Gods and goddesses have long since been discarded but drought and rust epidemics have continued to occur at irregular intervals. In recent years, however, much has been accomplished towards combating the severity of the elements and the ravages of disease. Patiently and laboriously plant breeders in many parts of the world have developed new wheat varieties with resistant qualities. In western Canada, while much remains to be achieved, marked progress has been made in the struggle against the enemies which assail the efforts of the farmer. Wheat varieties have been produced which will, to some degree, withstand the ravages of drought. Rust has been partially controlled with the development of other varieties. In Saskatchewan during the past year the value of these rust-resistant wheats has been demonstrated in a most striking manner. Stem rust infection, which first made its appearance within provincial borders during the first week of July, reduced the most promising crops of susceptible varieties into dismal failures. "Thatcher", the

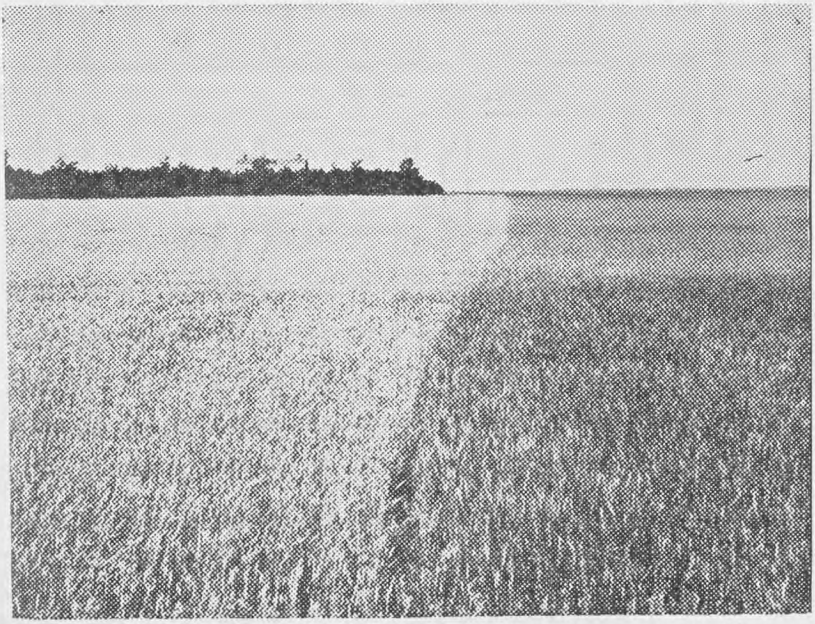
*A. H. R. Buller's "Essays on Wheat."

principal rust resistant variety grown in 1938, was practically immune to infection and the two leading Canadian varieties, Apex and Renown, were highly resistant. While new wheat varieties may be resistant to rust, before recommendation can be made for their extensive use, searching investigation must be made, not only in regard to their resistance to disease or drought but also in regard to their yielding ability and other agronomic characteristics. To obtain reliable data of the general agronomic qualities of the three rust resistant wheats, when compared to other varieties, the Saskatchewan Wheat Pool, in co-operation with the University of Saskatchewan and the Dominion Experimental Farms and Stations planned this extensive variety testing programme. A similar project, with the same varieties was conducted in 1937, but the results that year were only of a preliminary nature. Severe climatic conditions caused considerable havoc and in many instances the tests were completely destroyed before any useful data could be obtained. While in 1938 drought conditions were not nearly as severe as in the previous year, many areas in Saskatchewan received inadequate precipitation. Stem rust infection in varying degrees of intensity also covered the entire Province. The presence of these two major destroying factors, while utterly disastrous to production, enabled the recording of information of vital importance.

Undoubtedly the most discouraging feature in connection with the project was the invasion of grasshoppers. The activities of millions of these destructive insects resulted in considerable damage to many tests and in numerous instances necessitated the harvesting of the crop before it had properly ripened. Even this pestilence, however, was not without its compensating features. In many cases the grasshoppers appeared to show a preference, attacking some varieties more severely than others, thus the necessity of further investigation of the reason for this preference is indicated.

Despite the abandonment of a number of the tests through severe damage by drought, hail and grasshoppers, generally this year's project was an eminently successful one and undoubtedly much worthwhile information has been gathered.

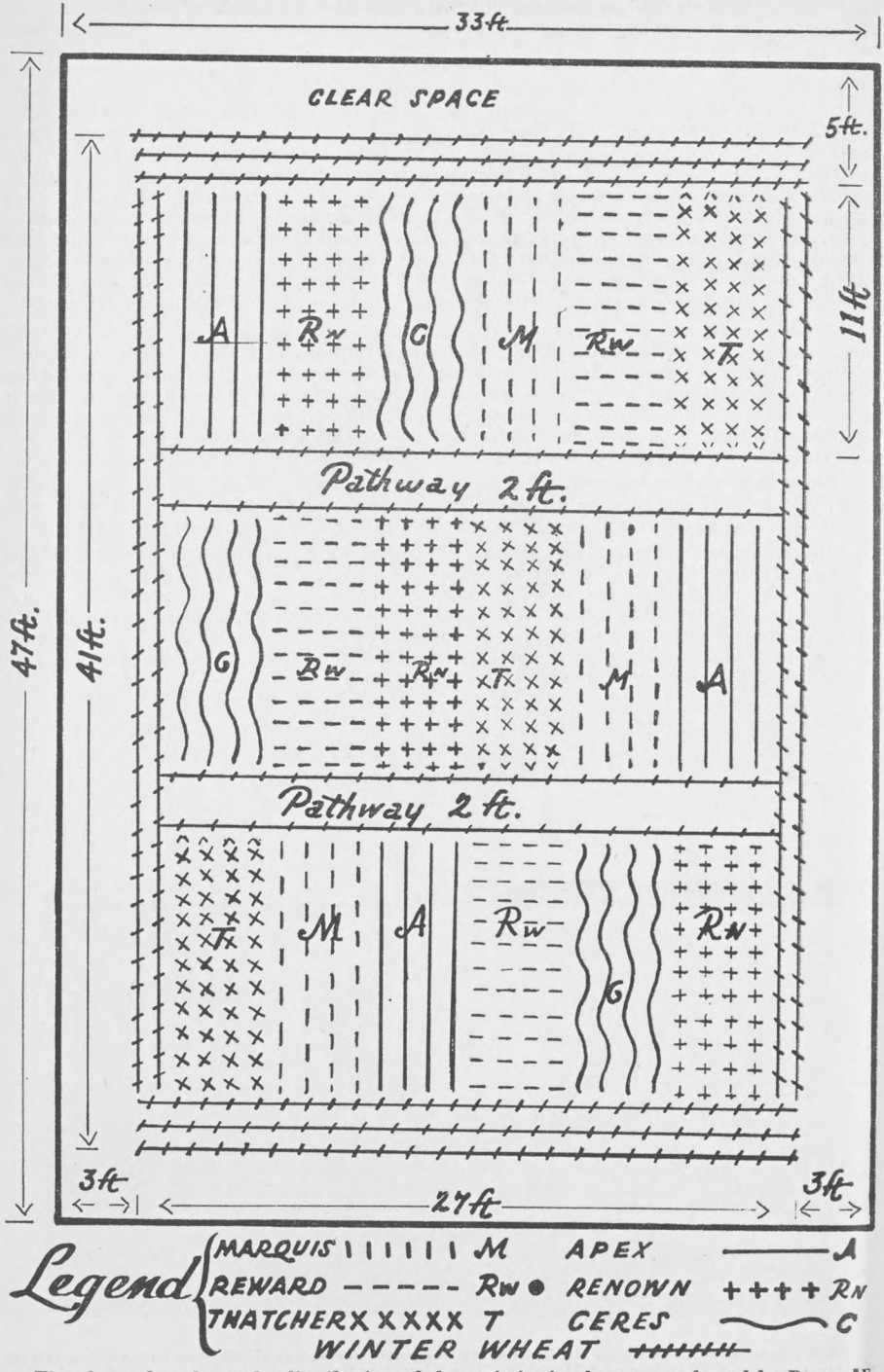
In giving consideration to the data contained herein, however, it cannot be too strongly stressed that the results apply to one year only, when a large part of the province was subject to a severe rust epidemic. The rust attack had important repercussions on the most susceptible varieties hence the comparative performance of these varieties cannot be compared with their behaviour in a rust free year. Nevertheless the constant danger of a recurrence of severe rust infection emphasizes the merits of the resistant varieties as shown in these results.



This photograph taken near Regina during the past year shows vividly the contrasting effects of stem rust upon Thatcher and Marquis. The Thatcher field is on the left, while Marquis, discoloured by rust, adjoins it on the right.

PLAN OF TEST No. 1.

Wheat Pool District 1, Sub-District 1, Test Designation "A".



The above plan shows the distribution of the varieties in the test conducted by Burton E Taylor of Gainsborough, in Wheat Pool District 1, Sub-district 1, Test Designation "A". The distribution of the varieties was different in all cases, each test being separately randomized.

COMMON WHEAT VARIETIES

VARIETIES USED IN THE TESTS

The same varieties selected in 1937 were used in the test, namely: Marquis, Reward, Thatcher, Apex, Renown, Ceres, Reliance and Garnet. Only six of these varieties, however, were used in each test. Marquis, Reward, Thatcher, Apex and Renown were sown in all tests, the sixth variety being selected from Ceres, Reliance or Garnet, according to the suitability of the variety for the part of the province in which it was to be sown.

LOCATIONS OF TESTS

For the purpose of administration the Saskatchewan Wheat Pool has divided the province into sixteen areas, each of which is known as a Wheat Pool District. In turn each District is divided into ten areas which are known as Sub-Districts. With five exceptions two and sometimes more tests were located in each of these sub-districts, thus the project consisted in all of 333 tests and covered the whole of the grain growing area of Saskatchewan.

DESCRIPTION OF TEST

Each test was again sown in a modified latin square. The size of the test was 41 feet by 27 feet which allowed for 18 plots of four rows each, twelve inches apart. It also allowed for an outside protection of winter wheat. Sown around the test at a distance of about three feet from the outside row of winter wheat two or more drill widths of oats acted as a wind protection and sawfly trap. The whole test was divided into three sections with a pathway two feet wide between each section. In each section each variety was represented by one plot of four rows, each ten feet long. A new feature in this year's project was the method employed in randomization. In previous years the arrangement of the plots was similar in all tests making possible close comparisons between varieties. However, in 1938, the significance of even smaller differences between varieties was made possible by separately randomizing the plots of each test so that throughout the whole project the distribution of the varieties differed in each test.

The seeds were sown at a depth of 2½ inches to 3 inches and each co-operator was particularly requested to endeavour to place the kernels about one-third of an inch to two-fifths of an inch apart, in a manner uniform for all varieties, discarding any surplus seed left in a package after the row had been sown.

ORGANIZATION AND CO-OPERATION

Carefully selected Junior Co-operators were again appointed to act as test supervisors. To ensure that the project would be carried out exactly in accordance with the prescribed plan each co-operator was supplied with detailed information of the method to be employed, both in regard to the laying out of the test and also in regard to the manner in which it was to be sown. To further assist the co-operator, a coloured plan of each test showing the different distribution of the varieties was included in the instructions forwarded.

The necessary seed for the experiment was assembled in the Head Office of the Wheat Pool Organization in Regina.

Since the tests were separately randomized particular care was exercised to ensure that each co-operator would be able to easily follow the method to be employed in sowing the different varieties. 333 sets of envelopes were first marked 1-72 inclusive. The envelopes were then marked with the names of the different varieties according to the randomization for each individual test. They were then sorted in varieties and sufficient seed for each variety (9 grams) was weighed and placed in each envelope. After this was completed the envelopes, plainly marked with the row number and name of the variety, were re-sorted, each set arranged according to the randomization for the particular test and numbered with the number allotted to the test. Thus the envelopes marked 1-4 contained the seed for the four rows of the first variety in each test to be sown in Section 1. Envelopes 5-8 contained seed for the four rows of the second variety in Section 1 and so on down to the envelopes marked 69-72 which contained the variety to be sown last in Section 3 of the test. Sufficient winter wheat (1½ lbs.) was also supplied for the outside protection rows.

In addition to the seed, 72 numbered wooden stakes were sent to each co-operator, 36 large stakes and 36 small stakes. The large stakes were used for the inside rows of each plot and the small stakes for the outside rows of each plot.

Junior Co-operators were again requested to furnish full reports covering the progress of the test three times during the growing season. The first report, which was to be completed and sent in to Head Office of the Saskatchewan Wheat Pool by

June 15th, requested information in connection with the date of seeding, soil type, cultural treatment, soil moisture depth and the amount of rainfall from the date of seeding to June 10th. Full details in regard to the dates of emergence of the different varieties, uniformity of stand, cutworm, wireworm, and grasshopper damage and also soil-drifting damage was requested in this report.

The second progress report was required to be completed and returned by July 15th. This report asked for information in regard to dates of heading; insect damage not noted on the first report, the percentage of heads affected with covered smut, the number of loose smutted heads and details in regard to weed interference. A report in regard to the amount of rainfall from June 10th was also required. About the first week in July each Junior Co-operator was circularized requesting that information in regard to the percentage of stem rust affecting the different varieties be given in this report. In order that rust infection would be accurately reported a scale was supplied which showed six degrees of rustiness computed on the basis of 100 representing the maximum surface covered by rust. This scale is shown on page 9.

The final report was required to be returned by September 1st, and requested information in connection with the height of each row, straw strength, date when most heads were ripe, the percentage of bird damage, the percentage of shattering, and the date of harvesting. The percentage of stem rust was also required to be noted on this report.

Space was provided on all of these reports for any remarks which the Co-operator wished to make upon subjects not specifically asked for in the instructions.

The tests were inspected by District Representatives of the Wheat Pool Organization. Each representative was supplied with report forms, a list which showed the randomizations of the tests in his district, and copies of the rust scale. The reports of the District Representatives provided a very valuable independent verification of the co-operator's own reports.

Before the tests were harvested further instructions were prepared and sent out to the test supervisors. In these instructions special attention was given to such points as the best time to harvest and how harvesting should be done. Each co-operator was requested to take particular care in the curing of the crop and in storing it until it was ready to be handed over to the local Wheat Pool Elevator agent for shipment.

Arrangements were made with the Dominion Experimental Farms and Stations at Indian Head, Swift Current, Scott and Rosthern to thresh the grain. Special care was taken to see that the two centre rows of each of the eighteen plots were parcelled separately, together with the stakes indentifying them. Only a small portion of the straw was retained with the heads. After the crop was thoroughly dried the eighteen bundles were placed in the required number of gunny sacks and shipped to the Experimental Station designated. Special shipping tags were forwarded to each Pool Elevator agent in order that identification could be established when the sheaves were received at the Experimental Station.

Each Experimental Farm and Station was provided with threshing report forms and a list of the different randomizations. The report forms enabled them to keep a record of the two centre rows of the eighteen plots. The information obtained following threshing consisted of grain yield in grams per plot and grain weight in pounds per measured bushel (uncleaned). A column was also provided for remarks in connection with colour, etc. After threshing was completed each Experimental Farm and Station forwarded the threshed samples to the Head Office of the Saskatchewan Wheat Pool where they were cleaned, again weighed, thus obtaining the weight per measured bushel (cleaned), and the commercial grade placed on each variety.

After all samples had been graded they were forwarded to Professor Thorvaldson, University of Saskatchewan, to be tested for protein.

The project was again arranged and supervised by Dr. J. B. Harrington, Professor of Field Husbandry, University of Saskatchewan.

The compiling, summarizing and statistical work was carried out at the Head Office of the Saskatchewan Wheat Pool in Regina, under the supervision of R. F. Haddrell.

ANALYSIS OF DATA

In order that a study could be made of the yielding capacity, disease resistance and general characteristics of each variety grown in the tests under the different soil and climatic conditions of Saskatchewan, all data in connection with the tests were compiled and analysed in Cereal Variety Zones. A few changes have been made from last year in the areas of the different zones. Thus Zone 1 is now divided into 1A and 1B and Zone 2B is divided into two zones, Zone 2B and 2D. These divisions are shown in the map illustrating Cereal Variety Zones on page 11.

NAMES AND ORIGIN OF VARIETIES USED IN THE TEST

The names and origin of the varieties used in the test are given below:

Marquis

Marquis is a descendant of a cross made in 1892 by officials of the Central Experimental Farm, Ottawa, Ont., between an early ripening wheat, obtained from India under the name of Hard Red Calcutta, and Red Fife. It was isolated in 1903 by the late Sir Charles E. Saunders, when Dominion Cerealist, and was first sent to Western Canada for trial on branch farms in 1907.

Ceres

This variety originated from a cross between Kota and Marquis, made at the North Dakota Experimental Station, in 1918. It was introduced into Canada for trial by the Dominion Experimental Farm, at Brandon, Manitoba, in 1924, from which farm it later was made available for trial by farmers.

Reliance

Reliance was developed by the United States Department of Agriculture in cooperation with the Oregon, California, Montana, North Dakota and Minnesota Experiment Stations, from the cross, Kanred x Marquis, made in 1917.

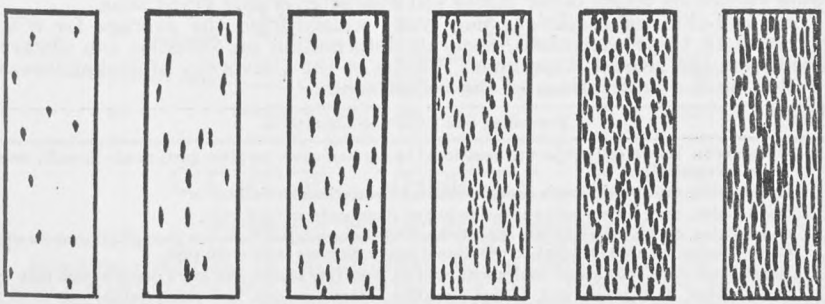
Thatcher

Thatcher was produced from a cross made in 1921 at the Minnesota Agricultural Experiment Station, University of Minnesota, St. Paul, Minnesota, between (Marquis x Iumillo) x (Marquis x Kanred). The primary aim was to obtain a wheat of high quality for milling and baking purposes that was resistant to black stem rust and of desirable agronomic type. From one of the original crosses (Marquis x Iumillo) a bread wheat type was obtained with a considerable degree of resistance to stem rust under field conditions. From the Marquis x Kanred cross, a spring wheat was selected of good milling and baking qualities that was immune to several forms of black stem rust, and of high yielding ability. Thatcher originated from a cross between these two.

Garnet

This variety is the result of a cross made at the Central Experimental Farm, Ottawa, 1905, between the two Ottawa varieties, Preston A x Riga M.

RUST SCALE



A	B	C	D	E	F
5 per cent.	10 per cent.	25 per cent.	40 per cent.	65 per cent.	100 per cent.

Scale for estimating rust, illustrating six degrees of rustiness used in estimating the percentage of stem-rust infection. The shaded spots represent rust, and the figures represent approximately the rust percentages computed on the basis of the maximum of surfaces covered by rust as shown in the 100 per cent. figure (F). Figure F in the diagram represents 37 per cent. of actual rust-covered surface and is arbitrarily selected as 100 per cent. The other percentages are in terms of figure F.

Reward

Reward is the result of a cross made in 1912 at the Central Experimental Farm, Ottawa, between Marquis and the very early maturing variety Prelude. It was first released for trial by farmers in 1928.

Renown

This variety was produced at the Dominion Rust Research Laboratory, Winnipeg, Manitoba, from a cross between Reward and the rust-resistant variety H.44-24.

Apex

Apex was developed at the University of Saskatchewan, Saskatoon, from the composite cross (H. 44-24 x Double Cross) x Marquis, the Double Cross being a sister of Thatcher from the cross (Marquis x Kanred) x (Marquis x Iumillo).

CEREAL VARIETY ZONES

The Cereal Variety Zones of Saskatchewan are illustrated on Page 11. In a recent publication under the heading of Variety Zones, the Saskatchewan Cereal Variety Committee state as follows:

"The information accumulated during the past twenty years on cereal variety performance in Saskatchewan has shown that varietal behaviour is the expression of the various inherited potentialities of the variety as influenced by the environment. Differences in soil, climate, elevation, slope, windiness, sunniness, precipitation, temperature and the various crop pests all have their effect on a variety. As no two varieties are alike, and as no two seasons are alike, it is not easy to predict what a given variety will do in comparison with another one in a given season.

However, a farmer grows grain not for one year alone but for a number of years. Therefore, while seasonal differences may be extremely important, his choice of variety must depend primarily on average performance over many years. The soil survey map of Saskatchewan, the long time weather records kept at stations throughout the province, and hundreds of comparative variety plot tests and quality tests furnish the information the farmer needs to aid him in choosing a variety. . .

Now, among all the influences on cereal varieties, it has been found that the soil-climatic environment is of major importance. There are four main soil-climatic zones in Saskatchewan, namely 1, 2, 3 and 4. Comparatively small differences in precipitation, summer temperature, length of frost-free season and soil type affect markedly the comparative values of cereal varieties. To facilitate the making of specific variety recommendations, it has been necessary to divide the soil-climatic zones into cereal zones. The cereal subdivisions of the soil-climatic zones are designated by the addition of a letter to the soil-climatic zone number. Thus, cereal zone 2B is section B of soil-climatic zone 2.

While definite zones make necessary the exact location of boundary lines, it should be pointed out that a line separating two zones is arbitrary and that a tolerance of several miles one way or another is allowable with respect to variety recommendations. In addition, attention is drawn to the fact that in each zone there are many local areas which differ widely from the average for the zone. Some of these areas have light sandy soil, others have heavy wet soil, some are at a higher elevation than the surrounding country and receive extra precipitation, others may be low lying and subject to frequent early frosts. The detailed soil map of Saskatchewan shows clearly the wide variations which occur in the soil character of any given zone.

Local soil-climatic conditions may vary widely from the average for a zone. With regard to these exceptions, accurate information on varieties can always be obtained from the nearest Experiment Station or the University of Saskatchewan.

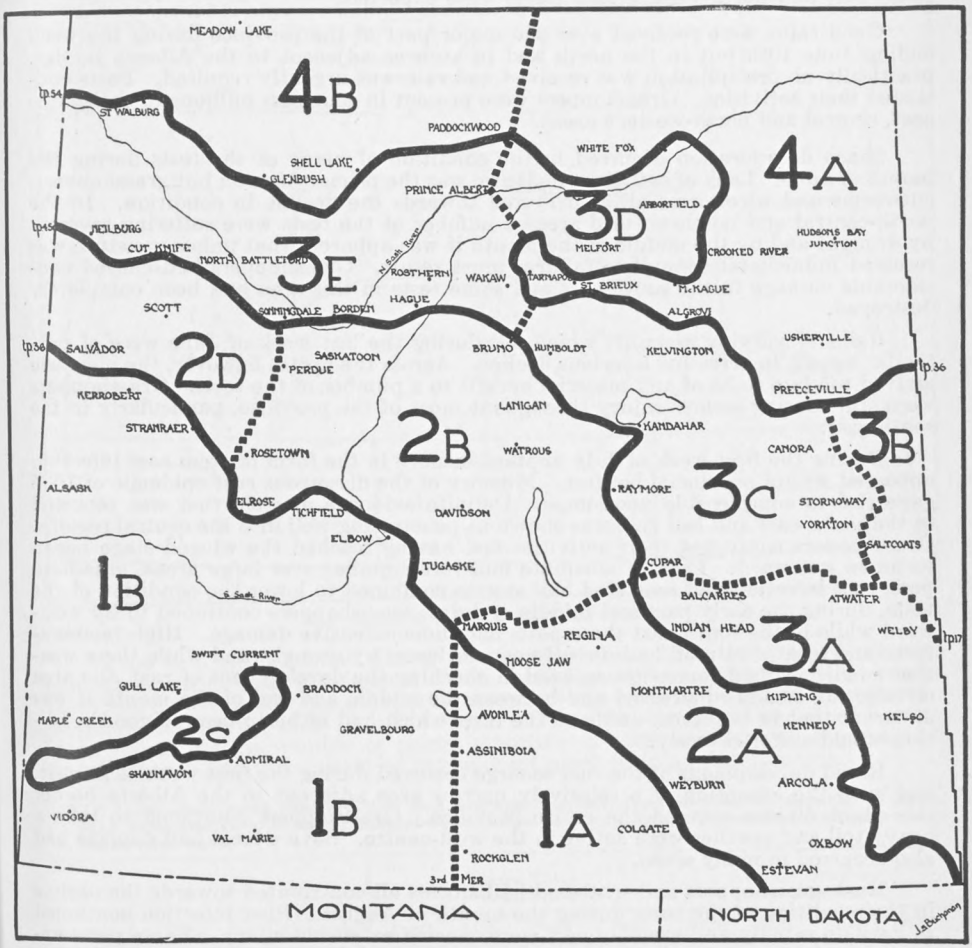
Following are descriptions of the cereal zones:

Zone	Prevailing Soil Type and Conditions
1A	Open plains, brown soil subject to occasional heavy damage from stem rust; needs drought resistant varieties especially.
1B	Open plains, brown soil, needs drought resistant varieties especially.
2A	Open plains, dark brown soil; subject to heavy damage from stem rust.
2B	Open plains, dark brown soil; has slightly lower summer temperature, less precipitation and a slightly longer season than 2A; subject to occasional heavy damage from stem rust.
2C	Bench land, dark brown soil; cooler with shorter frost free season and more precipitation than 2B.
2D	Open plains, dark brown soil, higher elevation, shorter season, less precipitation and more frost damage than 2B.
3A	Very dark brown and black soils; park land; subject to frequent heavy damage from stem rust.
3B	Park land, characterized by a deeper, dark soil and a shorter frost-free season than 3C, subject to frequent heavy damage from stem rust.
3C	Very dark brown and black soils; park belt; lower summer temperature, less precipitation and a slightly shorter season than 3A; subject to occasional heavy damage from stem rust.
3D	Black soil; park area; subject to occasional moderate loss from stem rust.
3E	Very dark brown soil; park region, less precipitation and slightly shorter season than 3D. Slightly subject to rust in eastern part.

4A.....Grey soils; wooded region; subject to occasional damage from stem rust in southern part.
4B.....Grey soils; wooded area; frost free season shorter and summer precipitation lower than in 4A.

DISTRIBUTION OF VARIETIES

As we have already stated the sixth variety in each test was selected according to its suitability for the area in which it was to be sown. These areas were based on Cereal Variety Zones. In zones 1A, 2A, 2B, 3A, 3B and 3C Ceres constituted the sixth variety. In zones 1B, 2C and 2D Reliance was chosen as the sixth variety. Garnet was selected as the sixth variety for zones 3D, 3E, 4A and 4B.



CEREAL VARIETY ZONES

GENERAL GROWING CONDITIONS

Moisture conditions in Saskatchewan at the beginning of the growing season showed marked improvement over the previous year. Heavy rains, which fell during the week ending May 6th, resulted in still greater improvement in moisture conditions but cool weather resulted in very slow growth. In some areas, particularly in the north, heavy frosts considerably retarded development.

Some damage by soil-drifting occurred in the south-west and west-centre during the week ending May 13th but generally the injury was not of an extensive nature. At this date, however, numerous grasshoppers made their appearance in the south-east and were causing considerable apprehension.

The month of June commenced with most of the tests in good condition. High winds, however, had caused further drifting and some serious injury had occurred, especially in the west centre. Moisture deficiency was becoming apparent in many areas. In the north-centre and north-eastern regions, particularly, damage by drought had already occurred and rains were urgently required. Pests were very numerous. Cutworms and wireworms were active over large areas. Injury by these pests had been most severe in the south-east, south-centre, centre, that portion of the south-west lying immediately south of the South Saskatchewan River and in the north-west. Grasshoppers also continued to hatch in large numbers in many regions. These destructive insects had already begun to attack many of the tests and in the south-east and north-west serious losses were expected.

Good rains were received over the major part of the province during the week ending June 10th but in the north and in an area adjacent to the Alberta border, practically no precipitation was received and rain was urgently required. Pests continued their activities. Grasshoppers were present in countless millions in the south-east, central and north-western areas.

Sharp deterioration occurred in the condition of many of the tests during the month of June. Lack of sufficient moisture was the primary reason but grasshoppers, cutworms and wireworms all contributed towards the decline in condition. In the north-central and north-western areas a number of the tests were suffering severely by drought and by the middle of the month it was apparent that unless moisture was received immediately complete failures must result. Grasshoppers had caused considerable damage in the south-east and some tests in this area had been completely destroyed.

Rains of varying amounts which fell during the last week of June were of particular benefit in arresting a serious decline. Across the north, however, the moisture arrived too late to be of any material benefit to a number of the tests. Grasshoppers were still causing serious injury throughout most of the province, particularly in the south-east.

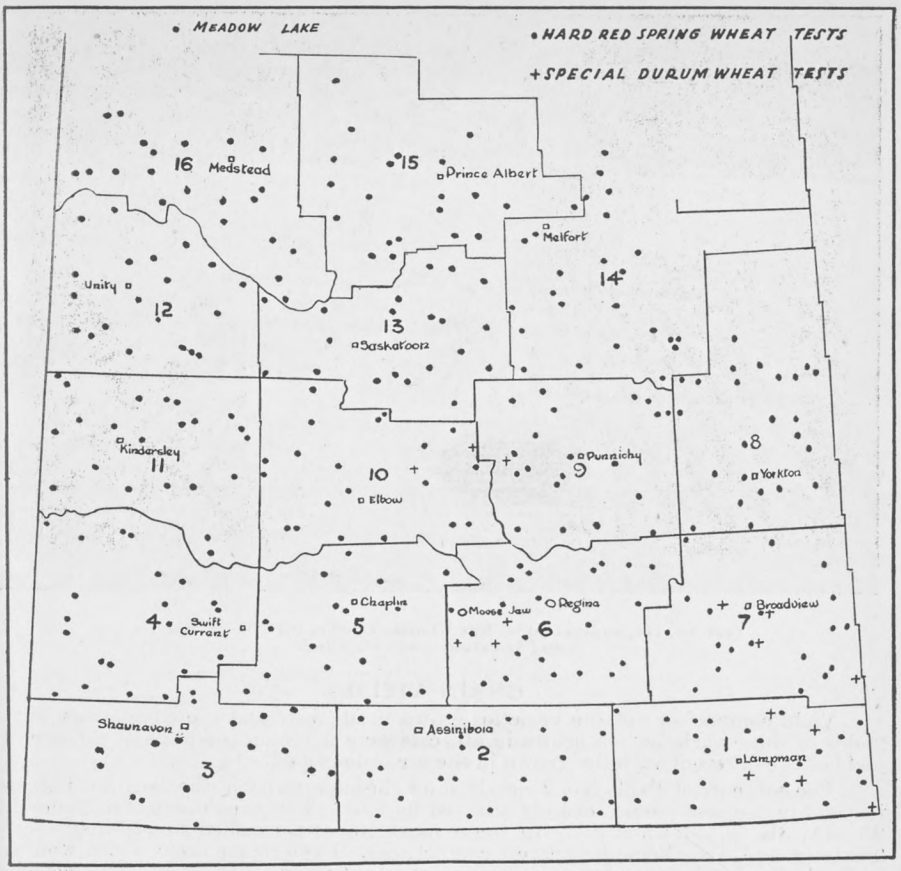
During the first week of July another menace in the form of stem rust infection appeared within provincial borders. Memory of the disastrous rust epidemic of 1935 gave rise to considerable uneasiness. Definite evidence of stem rust was reported in the south-east and leaf rust was shown as penetrating well into the central regions. Grasshoppers continued their activities and having reached the winged stage began to move westward. Lack of adequate moisture supplies over large areas, grasshoppers, rust infection and scattered hail storms combined to lower the condition of the tests, during the early part and middle of July. Grasshoppers continued to fly westward while in the south-east these pests had done extensive damage. High temperatures and lack of rainfall had directly caused losses by drought and while these weather conditions had somewhat assisted in checking the development of rust, the area of infection steadily increased and between the middle and end of the month it was apparent that in the south and east the tests which had hitherto been in good condition would suffer severely.

Rapid development of the rust scourge occurred during the first week of August, and with the exception of a relatively narrow area adjacent to the Alberta border this plant disease covered the entire province. Grasshoppers continued to take a heavy toll and sawflies were active in the west-centre. Severe local hail damage had also occurred in many areas.

Rust, grasshoppers and scattered hail storms all contributed towards the decline in the condition of the tests during the month of August. Rust infection continued to develop rapidly and grasshoppers were causing extensive injury. These pests appeared in vast numbers in the central areas where they severely attacked all tests, their depredations being exceedingly heavy.

To conclude it might be said that nearly every adversary took a part in attacking the tests. Drought, rust infection and grasshoppers were the main assailants but soil-drifting, cutworms, wireworms, hail and sawflies all took their respective parts in the onslaught.

In some areas—particularly in the south-east, a relatively extensive region in the west-centre, and in the north-central territory—some of the tests were completely destroyed. The most favourable conditions appeared in the north-east and west-centre but here also rust infection had caused considerable declines. Generally, however, over the entire province most of the tests were harvested and only in a relatively few instances were any tests abandoned before some useful information could be obtained.



MAP SHOWING LOCATIONS OF TESTS

As the amount of rainfall during the growing season has a far greater influence upon wheat yields than the amount of the annual precipitation the rainfall shown in Table No. 1 covers only the months representing the growing period of the wheat in Saskatchewan, during 1938 (April to July). The table is arranged in Cereal Variety Zones and shows the number of points reporting in each zone, the average rainfall for each month and the amount of the heaviest precipitation in each month.

TABLE 1—Average total precipitation and average heaviest precipitation for months of April, May, June and July, 1938, in Saskatchewan Cereal Variety Zones with number of points reporting in each zone.

Cereal Variety Zone	No. of Points Reporting	Average Total Precipitation				Average Heaviest Precipitation			
		April	May	June	July	April	May	June	July
1A	5	.53	3.19	2.89	2.01	.34	1.06	1.09	.60
1B	15	.44	2.24	2.17	1.38	.28	.80	.71	.57
2A	7	.51	2.00	2.17	1.83	.23	.80	.77	.62
2B	15	.73	1.61	2.27	1.79	.38	.57	1.35	.74
2C	1	.49	2.12	1.91	.81	.28	.92	.78	.14
2D	4	.64	2.28	2.20	1.75	.31	1.02	1.22	.47
3A	5	.49	1.55	2.83	2.02	.25	.64	1.27	1.1
3B	1	1.61	.76	1.51	5.06	.42	.30	1.08	1.90
3C	6	1.15	1.39	3.12	2.74	.54	.60	1.43	1.06
3D	4	1.11	1.02	.86	4.31	.39	.29	.30	2.47
3E	8	.56	2.05	.91	2.04	.33	.88	.38	.60
4A	1	1.52	1.80	4.26	1.49	.50	.85	2.06	.59
4B	1	.84	1.02	.90	1.96				

Note.—Precipitation figures are obtained from meteorological reports furnished by the Provincial Government and cover only those points shown in the reports. No information covering the average precipitation throughout each cereal zone is available.

Test No. 114, supervised by Ray Charles Clarke, R.R. No. 2, Regina, Land Location 35-17-21, W2nd.

GRAIN YIELD

Yield comparisons of the varieties grown in all tests and the comparison of the yields of those varieties not grown in all tests were made on the basis of the average yield of the different varieties grown in the areas described.

The contents of Table No. 2 clearly show the superiority of the resistant varieties in yield in the areas most severely affected by rust. This area consists of Zones 1A, 2A, 3A, 3B, 3C, 3D and 4A. In these zones Renown excelled in yielding ability, Thatcher and Apex being its nearest competitors. Even in the areas which were not seriously injured by the rust epidemic the resistant varieties were rarely exceeded or even equalled in yield by the susceptible varieties, the exceptions being in Zone 2C where Reliance exceeded Apex, Zone 2D where Reliance exceeded Thatcher, Apex and Renown, and in Zone 4B where Marquis equalled Apex and exceeded Renown. Only in Zone 2C, however, did a susceptible variety outyield any of the resistant varieties by a necessary difference. In this zone Reliance yielded significantly more than Apex and Renown.

A comparison of the yields in the area where Ceres was grown as the sixth variety in the tests shows that generally Renown excelled with an average yield of 24.6 bushels. Thatcher ranked second in yielding ability, being .5 bu. less than Renown. Apex was third with an average yield of 23.2 bushels. With the exception of Zone 2B where the infection was not quite so severe this area was subject to severe rust damage. Ceres, with an average of 18.1 bushels, was outyielded by Renown, Thatcher and Apex by 6.5 bu., 6.0 bu. and 5.1 bu., respectively. It was, however, somewhat superior to the other susceptible varieties, exceeding Reward by 2.3 bu. and Marquis by 5.6 bu.

Reliance was grown as the sixth variety in the southwestern and west central parts of the province. A portion of this area (the eastern part of Zone 1B) suffered somewhat from the rust epidemic, but generally rust infection was not severe. Thatcher outyielded all other varieties with an average yield of 19.8 bu. per acre. Renown was its nearest competitor with a difference of 1.2 bu. Apex again ranked third in yielding ability with an average yield of 18.1 bu. Reliance followed with an average yield of 17.8 bu. Marquis, yielding 16.3 bu., exceeded Reward in this area by a difference of 1.3 bu.

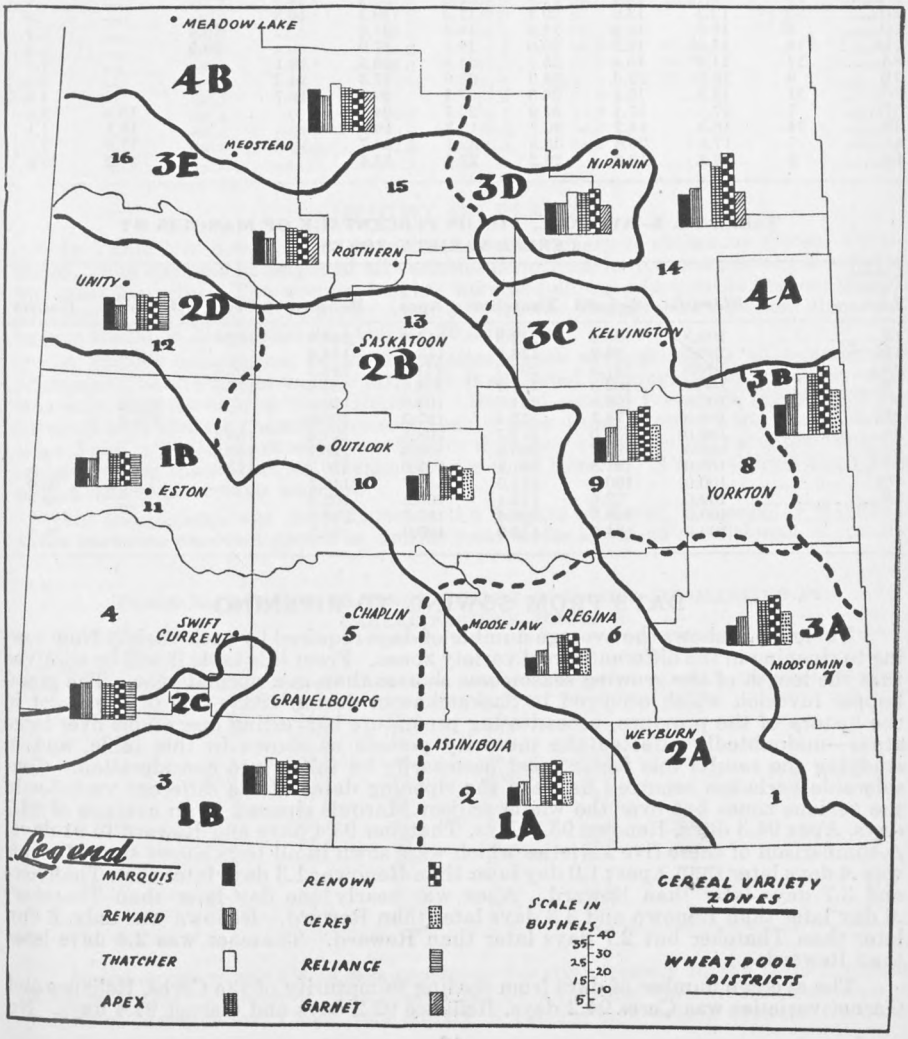
Garnet was grown as the sixth variety in the tests in Zones 3D, 3E, 4A and 4B. Zones 3D and 4A represent an area in the north-east where rust infection was severe. Zones 3E and 4B are in the northwestern portion of the province. In this region, although some rust was in evidence, the infection was only of a comparatively light

nature. In order that the comparative performance of the different varieties when grown under similar conditions, may be shown, the yields below cover two regions, i.e., the north-west and north-east of the province.

In the north-west (Zones 3E and 4B), where, as we have already stated rust infection was relatively light, Thatcher excelled with an average yield of 21.6 bu. Apex was its nearest competitor with a yield of 20 bu. Renown and Marquis were practically equal in yielding ability with yields of 19.3 bu. and 19.2 bu., respectively. Garnet yielded an average of 17 bushels per acre, outyielding Reward by a difference of 1.8 bu. In the north-east (Zones 4A and 3D) where rust infection was severe the performance of the rust-resistant varieties was outstanding. Renown excelled in yield, showing an average of 32.1 bu. per acre. Thatcher was its nearest competitor with an average yield of 29.1 bu. Apex with 27.4 bu. ranked third. The heavy rust infection is reflected in the yield of the other varieties. Reward showed an average yield of only 18.8 bu. and Marquis yielded 17.1 bu. Garnet, with an average yield of 16.8 bu., was the lowest yielding variety in this area.

HISTOGRAMS SHOWING YIELDS

The histograms shown below give a comparison of yields in bushels per acre of the different varieties grown in each Cereal Variety Zone.



No comparison is made between the yields of Ceres, Reliance or Garnet, as these varieties were not grown under equal conditions.

In order that some information may be available in connection with comparative production, if any of the varieties were to be used throughout the province exclusively the yields of the different varieties were weighted for acreage. The results indicate, notwithstanding the fact that Renown has excelled in most of the zones, when acreage is taken into consideration Thatcher exceeds this variety by a slight difference. The weighted yield averages of the different varieties which were grown in all tests in bushels per acre, are shown as follows: Thatcher, 21.9 bu.; Renown 21.6 bu.; Apex 20.6 bu.; Reward 15.2 bu.; and Marquis 14.5 bu. The average yields of the other varieties which were not grown in all tests when weighted for acreage are shown as follows: Reliance, 18.2 bu.; Garnet, 17.6 bu.; Ceres, 17.3 bu.

TABLE No. 2—AVERAGE YIELD IN BUSHELS PER ACRE SUMMARIZED IN CEREAL VARIETY ZONES

Cereal Variety Zone	No. of Satisfactory Tests	Marquis	Reward	Thatcher	Apex	Renown	Ceres	Reliance	Garnet	Necessary Difference in Bushels
1A	17	10.9	13.8	23.2	23.2	24.4	18.2	....	....	1.2
1B	59	15.7	15.1	19.6	17.8	18.6	....	16.9	....	.6
2A	14	9.1	13.4	21.5	22.0	22.4	14.6	....	....	.9
2B	35	13.3	13.6	20.1	17.9	18.3	16.8	....	....	.8
2C	5	19.0	19.4	21.8	19.5	21.0	....	20.4	....	2.2
2D	14	17.8	13.3	20.0	19.1	17.9	....	20.5	....	1.0
3A	17	11.8	16.4	25.1	24.6	26.5	18.1	....	....	1.2
3B	9	16.9	22.6	33.9	33.6	37.3	24.2	....	....	2.1
3C	21	13.5	19.1	28.5	27.4	29.8	19.7	....	....	1.3
3D	7	17.1	17.1	22.9	22.7	24.4	....	....	15.9	2.0
3E	24	18.3	14.2	20.7	19.3	18.7	....	....	16.1	1.1
4A	7	17.1	20.6	35.3	32.1	39.7	....	....	17.9	2.5
4B	5	23.4	19.8	26.2	23.4	22.4	....	....	21.2	2.6

TABLE No. 3—AVERAGE, YIELDS PERCENTAGE OF MARQUIS BY CEREAL VARIETY ZONES

Cereal Variety Zone	Marquis	Reward	Thatcher	Apex	Renown	Ceres	Reliance	Garnet
1A	100.0	126.6	212.8	212.8	223.9	167.0	....	....
1B	100.0	96.2	124.8	113.4	118.6	....	107.6	....
2A	100.0	147.2	236.3	241.8	246.2	160.4	....	....
2B	100.0	102.3	151.1	134.6	137.6	126.3	....	....
2C	100.0	102.1	114.7	102.6	110.5	....	107.4	....
2D	100.0	74.7	112.4	107.3	100.6	....	115.2	....
3A	100.0	139.0	212.7	208.5	224.6	153.4	....	....
3B	100.0	133.7	200.6	198.8	220.7	143.2	....	....
3C	100.0	141.5	211.1	203.0	220.7	145.9	....	....
3D	100.0	100.0	133.9	132.7	142.7	....	....	93.0
3E	100.0	77.6	113.1	105.5	102.2	....	....	88.0
4A	100.0	120.5	206.4	187.7	232.2	....	....	104.7
4B	100.0	84.6	112.0	100.0	95.7	....	....	90.6

DAYS FROM SOWING TO RIPENING

Table No. 4 shows the average number of days required by each variety from sowing to ripening in the different cereal variety zones. From this table it will be observed that the length of the growing season was shorter than in a normal year. The grasshopper invasion which occurred in Saskatchewan during 1938—one of the worst in the history of the province, necessitating premature harvesting operations over large areas—undoubtedly affected the maturity periods as shown in this table, and in studying the results this factor must necessarily be taken into consideration. Considerable variation occurred between the ripening dates of the different varieties in the various zones but over the whole project Marquis ripened in an average of 94.7 days, Apex 94.3 days, Renown 93.7 days. Thatcher 93.4 days and Reward in 91 days. A comparison of these five varieties which were sown in all tests shows that Marquis was .4 days later than Apex; 1.0 day later than Renown; 1.3 days later than Thatcher; and 3.7 days later than Reward. Apex was nearly one day later than Thatcher; .6 day later than Renown and 3.3 days later than Reward. Renown was only .3 day later than Thatcher but 2.7 days later than Reward. Thatcher was 2.4 days later than Reward.

The average number of days from seeding to maturity of the Ceres, Reliance and Garnet varieties was Ceres 94.2 days, Reliance 92.2 days and Garnet 91.4 days. No

comparison can be made between these varieties as they were not sown in similar tests. Compared to other varieties when grown under identical conditions Ceres was 1.3 days earlier than Marquis, slightly earlier than Thatcher, 1.4 days earlier than Apex and 1.1 days earlier than Renown. It was, however, 2.2 days later than Reward.

Reliance was later than other varieties when grown in similar tests. It was 4.3 days later than Reward, 2.3 days later than Renown, 2.1 days later than Thatcher, 1.7 days later than Apex and .5 day later than Marquis.

Garnet, when compared with other varieties grown in the northern part of the province, excelled in earliness, being 6 days earlier than Marquis, 5.1 days earlier than Apex, 4.1 days earlier than Thatcher, 3.7 days earlier than Renown and 1.6 days earlier than Reward.

TABLE No. 4—AVERAGE NUMBER OF DAYS FROM SOWING TO RIPENING SUMMARIZED IN CEREAL VARIETY ZONES

Cereal Variety Zone	Marquis	Reward	Thatcher	Apex	Renown	Ceres	Reliance	Garnet
1A	91.4	87.1	90.0	90.7	91.1	89.6	....	....
1B	90.6	87.0	89.1	89.4	89.1	....	91.1	....
2A	89.1	85.3	88.7	90.1	88.7	88.0	....	....
2B	95.7	92.8	93.9	94 9	94.7	94.5	....	....
2C	93.2	88.2	91.2	93.0	89.8	....	94.6	....
2D	98.0	93.5	95.1	95.0	95.5	....	96.6	....
3A	97.7	93.0	95.6	97.1	96.4	95.6	....	....
3B	96.2	92.7	96.0	97.0	97.2	94.7	....	....
3C	98.4	95.5	99.9	100.6	100.4	97.8	....	....
3D	96.1	92.7	95.1	97.3	95.6	....	....	91.2
3E	96.4	92.2	94.3	94 7	93.8	.. .	....	90.8
4A	98.5	94 5	99.0	99.3	98.0	....	....	92.3
4B	100.0	94.8	97.3	100.3	96.5	....	....	92.7

HEIGHT OF PLANTS

In Table No. 5 the height in inches of each variety is shown by Cereal Varety Zones. The increase in height of all varieties is noticeable in the areas where moisture was most plentiful. The average heights were as follows: Marquis 31 inches; Reward 30.2 inches; Thatcher 29.8 inches; Apex 30.6 inches; Renown 30.7 inches; Ceres 33.8 inches; Reliance 27.9 inches and Garnet 26.2 inches.

A general comparison between varieties which were grown in all tests showed Marquis to be the tallest variety although it exceeded Renown by only .3 inch. Apex was only slightly shorter than Renown. Reward ranked fourth in this comparison being .8 inch shorter than Marquis, .5 inch shorter than Renown and .4 inch shorter than Apex. Thatcher showed less height than any of the other varieties being 1.2 inches shorter than Marquis, .9 inch shorter than Renown, .8 inch shorter than Apex and .4 inch shorter than Reward.

No comparison was made between the heights of Ceres, Reliance or Garnet as these varieties were not grown in similar tests under identical conditions.

TABLE No. 5—AVERAGE PLANT HEIGHT IN INCHES SUMMARIZED IN CEREAL VARIETY ZONES

Cereal Variety Zone	Marquis	Reward	Thatcher	Apex	Renown	Ceres	Reliance	Garnet
1A	34.9	32.7	33.2	34.2	33.8	35.5	....	....
1B	28.7	29.3	28.3	28.7	29.2	....	27.8	....
2A	32.5	32.0	31.3	32.4	31.9	33.2	....	....
2B	29.3	28.5	28.3	29.4	28.7	29.9	....	....
2C	28.0	30.2	29.4	28.6	29.0	....	27.4	....
2D	31.2	29.7	29.1	30.3	30.1	....	28.4	....
3A	33.0	31.2	31.5	32.3	31.9	33.3	....	....
3B	39.2	36.3	36.5	37.3	37.8	39.3	....	....
3C	38.9	37.3	36.6	37.2	38.8	38.9	....	....
3D	28.4	26.1	26.6	27.6	29.3	....	....	24.0
3E	25.3	25.4	24.1	25.8	24.9	....	....	24.8
4A	36.5	33.8	35.8	36.0	36.8	....	....	34.0
4B	28.8	25.3	26.8	27.3	25.0	....	....	25.5

In the areas where Ceres was grown as the sixth variety in the tests it excelled in height. Only in Zone 3C was it equalled by any other variety. In this zone the heights of Marquis and Ceres were equal. A general comparison between Ceres and

other varieties when grown in similar tests showed Ceres to be .5 inch taller than Marquis, 1 inch taller than Apex, 1.2 inches taller than Renown, 1.8 inches taller than Reward and 2 inches taller than Thatcher.

A comparison between the height of Reliance and other varieties grown under identical conditions showed Reliance to be shorter than any of the other varieties, being exceeded in height by the following differences: Reward and Renown 1.4 inches; Marquis 1.1 inch; Apex 1 inch; and Thatcher .7 inch.

In the northern regions where Garnet constituted the sixth variety it was exceeded in height by all other varieties by the following differences: Marquis 1.7 inches; Apex 1.6 inches; Renown 1.3 inches; Reward .6 inch and Thatcher .4 inch.

STRAW STRENGTH

The strength of straw was reported on a basis of 10-0; 10 being recorded if the plants were straight and erect. If the plants tended to lean slightly or were slightly curved at the base the straw strength would be shown as 9. The greater the lean, the greater proportion of leaning plants, the lower the figure shown until, if the plants were flat on the ground, they would receive 0 for straw strength.

Table No. 6 shows the strength of the straw of the different varieties in each Cereal Variety Zone based on the marking 10-0 as mentioned above.

From this table it will be observed that straw weakness is evident in the areas where moisture was most abundant. Some variation occurs in the relative strength of the straw of the varieties in a number of zones but with only a few exceptions this variation was not of marked nature. In the areas where stem rust infection was most severe the resistant qualities of Thatcher, Renown and Apex is reflected in the superior straw strength of these varieties. A general comparison between those varieties which were grown in all tests shows that Thatcher was superior to other varieties in strength of straw. Only very slight differences appeared between the straw of Thatcher, Renown, Marquis and Apex, these varieties showing relative weakness in the order named. Reward was decidedly weaker than any of these varieties. In considering these results, however, and in comparing the comparative straw strengths of the other varieties, one important feature cannot be disregarded. In many tests, severe grasshopper infestation resulted in heavy damage to the straw of all varieties. Considerable broken straw caused much difficulty in recording actual straw strength. In some instances one variety suffered more severely than others. Reward appeared to be particularly vulnerable to the grasshopper attack, and the relatively weak straw of this variety as shown in this report may be in part, the result of grasshopper damage.

In the area where Ceres was grown as the sixth variety in the tests Thatcher again excels in straw strength. It is followed in sequence by Renown, Apex, Marquis, and Ceres, the differences between each variety being of a uniform and comparatively slight nature. Reward again showed the weakest straw, being much weaker than most of the other varieties.

Reliance constituted the sixth variety in Zones 1B, 2C, and 2D.

Some variation occurred between the different varieties in these zones, but a general comparison showed Thatcher and Marquis to be equal in straw strength, exceeding the other varieties in this characteristic. These varieties were followed in sequence by Renown, Reliance, and Apex, with Reward again showing the weakest straw. The difference between Reward and the other varieties in this comparison is not of such a marked nature.

TABLE No. 6—COMPARISON OF STRAW STRENGTH SUMMARIZED IN CEREAL VARIETY ZONES

Basis 0-10

Cereal Variety Zone	Marquis	Reward	Thatcher	Apex	Renown	Ceres	Reliance	Garnet
1A	9.1	8.4	9.4	9.0	9.2	8.9	....	....
1B	9.3	8.6	9.3	9.0	9.3	....	9.1	....
2A	9.1	8.8	9.5	9.5	9.6	9.2	....	....
2B	8.9	8.3	9.1	8.7	8.9	8.7	....	....
2C	9.2	8.5	8.9	8.6	8.7	....	9.3	....
2D	9.4	8.6	9.1	8.9	9.1	....	8.9	....
3A	8.4	7.7	9.2	9.2	9.2	8.2	....	....
3B	7.2	8.1	8.8	8.5	8.2	7.3	....	....
3C	9.0	8.5	9.1	8.1	9.0	8.4	....	....
3D	8.2	7.9	7.5	8.6	8.6	....	....	7.3
3E	9.2	8.8	9.2	8.9	9.1	....	....	8.6
4A	8.7	8.5	8.6	8.1	8.6	....	....	6.4
4B	9.3	9.2	9.6	9.7	9.1	....	....	8.9

In the area where Garnet was grown as the sixth variety in the tests Renown equalled Marquis in straw strength and exceeded the other varieties. It was closely followed by Thatcher and Apex which were equal in this characteristic and ranked third in this comparison. Reward was somewhat weaker than the varieties already mentioned. Garnet showed the weakest straw.

WEIGHT PER MEASURED BUSHEL

Table No. 7 shows the average weight per bushel of each variety arranged in Cereal Variety Zones. All weights were taken on cleaned samples. From this table it will be observed that wide differences occurred in the comparative weights in the areas most severely affected by rust infection. The most marked difference appeared in Zone 3C where Marquis was outweighed by Apex by a difference of 10.5 lbs. Reward, despite the severe rust epidemic, showed remarkably good weights. Only in three zones (i.e., 3A, 3C and 4A, where rust infection was particularly severe) was Reward outweighed by any of the other varieties. In some zones in the western part of the province where stem rust infection was not severe, and where moisture supplies were inadequate, varietal differences for bushel weight were not as great and generally the varieties susceptible to rust outweighed the rust-resistant varieties.

A general comparison over the entire province of the varieties which were grown in all tests shows that Reward, with an average of 63.4 lbs. exceeded the other varieties in bushel weight. Apex was its nearest competitor, the difference between these two varieties being 1.4 lbs. Thatcher ranked third in this comparison, weighing 1.8 lbs. less than Reward and .4 lb. less than Apex. Renown weighed 2.3 lbs. less than Reward, .9 lb. less than Apex and .5 lb. less than Thatcher. Marquis was low in bushel weight being outweighed by Reward, Apex, Thatcher and Renown by differences of 4.8 lbs., 3.4 lbs., 3.0 lbs. and 2.5 lbs. respectively.

Throughout most of the area where Ceres was grown as the sixth variety in the tests rust infection was severe. Despite the rust epidemic, Reward again excelled in bushel weight, showing an average weight of 62.9 lbs. It was closely followed by Apex, the differences between these varieties being .5 lb. Thatcher and Renown each weighing 61.8 lbs. were outweighed by Reward and Apex by differences of 1.1 lbs. and .6 lb. respectively. The effect of rust was most pronounced in the weights of Ceres and Marquis. Ceres showing an average weight of 59.8 lbs. was outweighed by Reward and Apex by 3.1 lbs. and 2.6 lbs. respectively. It was also exceeded by both Thatcher and Renown by a difference of 2 lbs. Marquis showed an average of 56.1 lbs. and was low in weight, being exceeded by the other varieties by the following differences: Reward 6.8 lbs., Apex 6.3 lbs., Thatcher 5.7 lbs., Renown 5.7 lbs., and Ceres 3.7 lbs.

In the south-west and west central portions of the province where Reliance was grown as the sixth variety in the tests, rust infection, while present was generally not severe, but in some areas moisture conditions were somewhat poor. Reward with an average of 63.4 lbs. again excelled in bushel weight but in this area it was closely followed by Marquis, the difference between these two varieties being only .8 lb. Reliance ranked third in bushel weight, weighing 2.4 lbs. less than Reward and 1.6 lbs. less than Marquis. Thatcher and Apex were practically equal, weighing 60.5 lbs. and 60.6 lbs. respectively. Renown was low in weight being exceeded by the other varieties by the following differences: Reward 4.4 lbs., Marquis 3.6 lbs., Reliance 2 lbs., Apex 1.6 lbs., and Thatcher 1.5 lbs.

In the northern region where Garnet was grown as the sixth variety in the tests varietal comparisons can only be made after consideration is given to the different conditions which prevailed in the eastern and western sections of the area. In the western portion (Zones 3E and 4B) where rust infection was not severe and where moisture conditions were far from satisfactory, all varieties showed comparatively good weights. Reward excelled with an average weight of 64.9 lbs. Marquis, weighing 1.3 lbs. less than Reward was its nearest competitor. Apex closely followed Marquis in weight showing a difference of only .1 lb. Renown and Garnet were practically equal in bushel weight, weighing 62.6 lbs. and 62.7 lbs. respectively.

Severe rust conditions which existed in the eastern part of this area (Zones 3D and 4A) seriously affected the weights of the Marquis and Garnet varieties. In this territory Reward again excelled with an average bushel weight of 64.1 lbs. It was closely followed by Renown, the difference between these two varieties being only .2 lb. Thatcher and Apex tied in weight, each weighing 63.7 lbs. Garnet was outweighed by Reward and Renown by differences of 4 lbs. and 3.8 lbs. respectively. It was also outweighed by both Thatcher and Apex by a difference of 3.6 lbs. Marquis was low in weight being exceeded by all varieties by the following differences: Reward 5.8 lbs., Renown 5.6 lbs., Thatcher 5.4 lbs., Apex 5.4 lbs., and Garnet 1.8 lbs.

TABLE No. 7—BUSHEL WEIGHT IN POUNDS (CLEANED) BY CEREAL VARIETY ZONES

Cereal Variety Zone	Marquis	Reward	Thatcher	Apex	Renown	Reliance	Ceres	Garnet
1A	54.4	62.8	62.1	61.5	61.4	....	59.1	....
1B	59.1	62.9	59.1	59.8	58.2	60.3	....	....
2A	54.4	63.1	61.7	62.4	61.5	....	59.3	....
2B	60.2	63.9	61.6	62.4	61.2	....	61.9	....
2C	60.2	63.1	58.3	59.9	58.1	61.4	....	....
2D	63.3	65.5	63.2	64.2	63.0	64.0	....	....
3A	54.1	61.8	61.7	62.4	62.3	....	59.0	....
3B	55.3	63.6	63.4	63.3	63.4	....	60.1	....
3C	52.4	61.4	62.2	62.9	62.7	....	57.1	....
3D	61.3	65.1	63.5	63.8	63.7	....	....	62.5
3E	63.6	64.9	63.0	63.4	62.4	....	....	62.6
4A	54.5	62.8	63.9	63.7	64.2	....	....	56.9
4B	63.7	65.0	63.7	63.7	63.3	....	....	63.5

COMMERCIAL GRADES

Table No. 8 shows the percentage of commercial grades of each variety arranged in Cereal Variety Zones. From this table it will be observed that in all zones which were most subject to the severe rust epidemic the susceptible Marquis, Ceres and Garnet varieties were considerably inferior to the other varieties in commercial grades. Generally a superabundance of badly shrunken kernels was the reason for this inferiority but green and immature kernels were also contributory causes. Although seriously affected in yield by the rust epidemic Reward excelled in commercial grades. Only a comparatively small percentage of the samples showed shrunken kernels but green kernels were very prevalent. Reliance graded fairly well. This variety was sown in an area a part of which suffered from inadequate moisture supplies and many shrunken and green kernels were in evidence. The commercial grades placed on Renown were somewhat inferior in grades to the other rust resistant varieties. Lower bushel weight was a factor in reducing the commercial grades but the primary reason was a superabundance of green kernels which were in evidence in nearly all samples. Thatcher showed a considerable number of bleached kernels and other defects contributed towards lowering the commercial grades. In general, however, it graded fairly well. Apex although showing some green and shrunken kernels and in the north some kernels affected by black point, graded well, and was exceeded in commercial grades only by Reward.

Table No. 9 shows the percentage of commercial grades by varieties.

TABLE No. 8—PERCENTAGE OF COMMERCIAL GRADES BY CEREAL VARIETY ZONES

Cereal Variety Zone		% 1 Hd.	% 1 Nor.	% 2 Nor.	% 3 Nor.	% 4 Nor.	% No. 5	% No. 6	% Feed	% Rej. 3	% Rej. 5	% Sample
1A	Marquis	6	25	....	6	6	13	6	38	....	....	....
	Ceres	18	25	13	13	13	18	....	....	....	....	....
	Reward	25	50	19	6	....	....	....	....	....	....	....
	Thatcher	13	43	13	25	....	....	6	....	....	....	....
	Apex	25	44	19	6	....	....	6	....	....	....	....
	Renown	13	38	25	18	....	....	6	....	....	....	....
1B	Marquis	9	17	27	22	12	4	2	5	....	....	2
	Reliance	9	29	42	5	3	5	....	5	....	....	2
	Reward	27	39	17	12	3	....	....	....	2	....	....
	Thatcher	5	22	33	16	10	7	5	....	....	....	2
	Apex	12	33	29	3	16	5	....	....	....	....	2
	Renown	....	11	27	24	19	9	5	3	....	....	2
2A	Marquis	....	....	15	8	8	15	30	24	....	....	....
	Ceres	8	15	15	30	16	16	....	....	....	....	....
	Reward	30	30	23	8	9	....	....	....	....	....	....
	Thatcher	23	23	23	8	8	8	7	....	....	....	....
	Apex	30	46	....	8	....	8	8	....	....	....	....
	Renown	8	30	30	15	....	8	9	....	....	....	....
2B	Marquis	14	39	8	17	11	11	....	....	....	....	....
	Ceres	28	33	25	8	3	3	....	....	....	....	....
	Reward	50	28	14	5	....	3	....	....	....	....	....
	Thatcher	19	37	19	19	3	3	....	....	....	....	....
	Apex	39	30	11	14	3	3	....	....	....	....	....
	Renown	17	33	28	14	5	3	....	....	....	....	....
2C	Marquis	33	17	33	17	....	....	....	....	....	....	....
	Reliance	33	50	....	17	....	....	....	....	....	....	....
	Reward	67	33	....	....	....	....	....	....	....	....	....
	Thatcher	....	17	33	17	17	....	16	....	....	....	....
	Apex	17	50	17	....	16	....	....	....	....	....	....
	Renown	....	17	50	17	....	16	....	....	....	....	....

TABLE No. 8 *Cont.*—PERCENTAGE OF COMMERCIAL GRADES BY CEREAL VARIETY ZONES

Cereal Variety Zone	% 1 Hd.	% 1 Nor.	% 2 Nor.	% 3 Nor.	% 4 Nor.	% No. 5	% No. 6	% Feed	% Rej. 3	% Rej. 5	% Sample
2D.....Marquis.....	7	14	21	14	....	44	....	....	....	....	....
Reliance.....	....	8	28	21	21	22	....	....	....	....	....
Reward.....	8	28	22	14	28	....	....	....	....	....	....
Thatcher.....	8	28	8	28	28	....	....	....	....	....	....
Apex.....	15	28	8	21	28	....	....	....	....	....	....
Renown.....	....	28	8	36	7	21	....	....	....	....	....
3A.....Marquis.....	....	....	13	....	33	27	7	20	....	....	....
Ceres.....	....	7	53	20	13	7	....	....	....	....	....
Reward.....	....	53	27	13	....	....	....	....	7	....	....
Thatcher.....	7	13	46	27	7	....	....	....	....	....	....
Apex.....	....	40	33	20	7	....	....	....	....	....	....
Renown.....	....	33	13	40	14	....	....	....	....	....	....
3B.....Marquis.....	....	....	25	....	37	25	....	13	....	....	....
Ceres.....	....	25	50	12	....	13	....	....	....	....	....
Reward.....	12	38	38	12	....	....	....	....	....	....	....
Thatcher.....	12	38	50	....	....	....	....	....	....	....	....
Apex.....	....	50	38	12	....	....	....	....	....	....	....
Renown.....	....	25	50	25	....	....	....	....	....	....	....
3C.....Marquis.....	....	6	6	25	6	6	13	38	....	....	....
Ceres.....	....	19	19	19	6	19	12	6	....	....	....
Reward.....	13	30	19	25	13	....	....	....	....	....	....
Thatcher.....	6	56	25	13	....	....	....	....	....	....	....
Apex.....	44	30	13	13	....	....	....	....	....	....	....
Renown.....	12	50	19	19	....	....	....	....	....	....	....
3D.....Marquis.....	....	25	25	37	....	13	....	....	....	....	....
Garnet.....	....	37 (1 C.W.)	25 (2 C.W.)	25 (3 C.W.)	....	13	....	....	....	....	....
Reward.....	50	25	13	12	....	....	....	....	....	....	....
Thatcher.....	13	25	25	37	....	....	....	....	....	....	....
Apex.....	25	25	13	37	....	....	....	....	....	....	....
Renown.....	....	37	25	38	....	....	....	....	....	....	....
3E.....Marquis.....	12	12	8	44	12	12	....	....	....	....	....
Garnet.....	....	32 (1 C.W.)	16 (2 C.W.)	32 (3 C.W.)	....	16	....	....	....	4	....
Reward.....	24	8	24	20	24	....	....	....	....	....	....
Thatcher.....	8	20	16	28	24	4	....	....	....	....	....
Apex.....	20	16	20	12	24	8	....	....	....	....	....
Renown.....	4	20	12	36	20	8	....	....	....	....	....
4A.....Marquis.....	17	....	....	33	17	....	....	33	....	....	....
Garnet.....	....	33 (1 C.W.)	33 (2 C.W.)	....	....	....	....	34	....	....	....
Reward.....	33	17	33	....	....	....	17	....	....	....	....
Thatcher.....	17	50	33	....	....	....	....	....	....	....	....
Apex.....	....	83	17	....	....	....	....	....	....	....	....
Renown.....	17	33	17	33	....	....	....	....	....	....	....
4B.....Marquis.....	33	17	....	17	....	33	....	....	....	....	....
Garnet.....	....	50 (1 C.W.)	17 (2 C.W.)	....	....	33	....	....	....	....	....
Reward.....	17	33	17	17	16	....	....	....	....	....	....
Thatcher.....	33	....	17	33	17	....	....	....	....	....	....
Apex.....	33	17	....	50	....	....	....	....	....	....	....
Renown.....	....	33	....	33	17	17	....	....	....	....	....

TABLE No. 9—PERCENTAGE OF COMMERCIAL GRADES BY VARIETIES

	% 1 Hd.	% 1 Nor.	% 2 Nor.	% 3 Nor.	% 4 Nor.	% No. 5	% No. 6	% Feed	% Rej. 3	% Rej. 5	% Sample
Marquis.....	10.1	13.2	13.9	18.5	10.9	15.6	4.5	13.1	....	....	.2
Reward.....	27.4	31.7	20.4	11.1	7.2	.2	1.3	....	.7	....	....
Thatcher.....	12.6	28.6	26.2	19.3	8.8	1.7	2.6	....	....	....	.2
Apex.....	20.0	37.8	16.8	15.1	7.2	1.8	1.1	....	....	....	.2
Renown.....	5.5	29.8	23.4	26.8	6.3	6.3	1.5	.2	....	....	.2
Reliance.....	14.0	29.0	23.3	14.3	8.0	9.0	....	1.7	....	....	.7
Ceres.....	9.0	20.7	29.1	17.0	8.5	12.7	2.0	1.0	....	....	....
Garnet.....	....	38.0 (1 C.W.)	22.8 (2 C.W.)	14.2 (3 C.W.)	....	15.5	....	8.5	....	1.0	....

SUMMARIZATION

ACCORDING TO CEREAL VARIETY ZONES

Probably the most useful summarization of the data from this series of wheat variety tests is that which shows for each cereal variety zone the data on the different varieties for each important characteristic. In the following tables and discussions the data have been studied on the basis of these Cereal Variety Zones.

In analyzing the yield results calculations were made on the yield data obtained within each zone to determine the necessary difference between varieties required for odds of at least 19:1 that one variety yielded, under the conditions of the tests and irrespective of soil variability, more than another. If the difference between two varieties equals or exceeds the necessary difference the higher yielding variety is considered to be significantly higher yielding than the other.

Cereal Variety Zone 1A

Summarized results for Zone 1A are shown in Table No. 10. This zone represents a relatively small area in the south centre of the province. Moisture conditions were generally satisfactory but stem rust infection severely affected the susceptible varieties. Grasshoppers also took a heavy toll before harvesting operations were completed. Ceres was grown as the sixth variety in this zone.

Renown was high in yield but the actual differences between this variety and either Thatcher or Apex barely equalled the necessary difference. It yielded significantly more, however, than the other varieties. In height Renown exceeded Thatcher and Reward but was somewhat shorter than the other varieties. In earliness Renown slightly exceeded Marquis but was later than the other varieties by differences ranging from .4 day to 4 days. It was exceeded only by Thatcher in straw strength. In bushel weight it was exceeded by Reward by a difference of 1.4 lbs., was practically equal to Apex and slightly exceeded Thatcher. Its rust-resistant qualities are reflected in bushel weight as well as yield, Renown having outweighed both Marquis and Ceres by 7 lbs. and 2.3 lbs. respectively. Nearly all samples contained some shrunken or green kernels and in a few tests these defects seriously affected the commercial grades. It was exceeded in grades by Apex, Thatcher and Reward but graded slightly better than Ceres and displayed marked superiority to Marquis. Renown was practically immune to stem rust infection.

Apex equalled Thatcher in yielding ability but yielded significantly more than Marquis, Ceres and Reward. It was exceeded in height by Marquis and Ceres but was taller than the other varieties. In "earliness" it was exceeded by Reward, Ceres and Thatcher by differences of 3.6 days, 1.1 days and .7 day respectively. In straw strength it was reasonably satisfactory. Apex practically equalled Renown in weight per measured bushel. It was outweighed by Reward by 1.3 lbs. but slightly exceeded Thatcher in weight. The rust resistance of this variety is also reflected in bushel

Thomas Wyatt, R.R. No. 3, North Battleford, harvesting the different varieties grown in his test No. 307, on the N.W. ¼ of 20-45-15-W3rd.

weight as well as yield, Apex having outweighed Marquis and Ceres by 7.1 lbs. and 2.4 lbs. respectively. Some samples contained green and shrunken kernels but despite these defects Apex graded well, being only slightly inferior to Reward, exceeding Thatcher and Renown and showing a marked superiority to Marquis and Ceres. Only very slight rust infection appeared on this variety.

Thatcher was equal to Apex in yielding ability and yielded significantly more than Marquis, Ceres and Reward. With the exception of Reward, which was .5 inch shorter, Thatcher was exceeded in height by all varieties by differences ranging from .6 inch to 2.3 inches. It was somewhat earlier than Apex, Marquis and Renown, slightly later than Ceres and 2.9 days later than Reward. Thatcher excelled in straw strength. In weight per bushel Thatcher was slightly outweighed by Apex and Renown and weighed 1.6 lbs. less than Reward. Its rust-resistant qualities, however, are reflected in bushel weight as well as yield, Thatcher having outweighed Marquis and Ceres by 6.8 lbs. and 2.1 lbs. respectively. All samples contained some green, shrunken or bleached kernels and in a few tests these defects considerably affected the commercial grades. Over the whole zone, however, although inferior in commercial grades to Apex and Reward, it was slightly superior to Renown and showed marked superiority to Marquis and Ceres. Only a small percentage of rust infection appeared on the stems of this variety.

Ceres ranked fourth in yielding ability in this zone and significantly outyielded Marquis and Reward. Ceres excelled in height and with the exception of Reward, which was 2.5 days earlier, it exceeded all varieties in "earliness". In straw strength it was somewhat superior to Reward but inferior to all other varieties. Rust infection resulted in Ceres showing a relatively light weight and while it exceeded Marquis by 4.7 lbs. it was outweighed by the other varieties by differences ranging from 2.1 lbs. to 3.7 lbs. Shrunken kernels were in evidence in practically all samples and, with the exception of Marquis, the commercial grades placed on Ceres were inferior to all varieties. This variety showed numerous loose smutted heads and in some tests traces of covered smut were noted. The stems of the Ceres variety showed approximately 14% less rust infection than Marquis and displayed slightly less infection than Reward.

Reward ranked fifth in yielding ability and yielded significantly more than Marquis. It was exceeded in height and straw strength by all other varieties. It excelled in earliness exceeding the other varieties by differences ranging from 2.5 days to 4.3 days. Despite the heavy rust infection Reward excelled in bushel weight, outweighing the rust resistant varieties by approximately 1.5 lbs. It also outweighed Marquis and Ceres by 8.4 lbs. and 3.7 lbs. respectively. Although a number of samples contained some green and shrunken kernels, Reward also excelled in commercial grades, grading slightly better than Apex, its nearest competitor. Some loose smutted heads were in evidence. It was estimated that the amount of stem rust infection which appeared on the Reward variety was approximately 37%.

Marquis suffered most severely from the rust epidemic and was low in yield. In height it was exceeded by Ceres by .6 inch but was taller than the other varieties by differences ranging from .7 inch to 2.2 inches. It was later than the other varieties by differences of from .3 day to 4.3 days. In straw strength Marquis was slightly superior to Ceres and Apex and superior to Reward. It was, however, somewhat inferior to Thatcher and Renown. The severe rust infection is fully reflected not only in yield, but also in bushel weight and commercial grades. All samples contained a superabundance of shrunken kernels and Marquis was outweighed by all varieties, the differences in weights being most marked when compared to Reward and the rust-resistant varieties. Marquis was also low in commercial grades, being exceeded by all varieties by marked differences. Throughout the zone Marquis showed approximately 50% of stem rust infection.

The severe rust epidemic of 1938 clearly indicates the necessity of the widespread use of a rust resistant variety in this zone. Renown, while leading in yielding ability, failed to yield significantly more than either Thatcher or Apex. Thatcher, while it showed slight inferiority to Renown in bushel weight, was superior in other characteristics and showed somewhat better commercial grades. Apex was reasonably satisfactory in most characteristics, weighed slightly more than Thatcher or Renown and showed marked superiority to these varieties in commercial grades. Generally it would appear that Renown, Thatcher and Apex are fairly equal in desirability but the advantage held by Apex in its slightly higher bushel weight and better commercial grades is deserving of particular attention. Of the varieties susceptible to rust infection Ceres, although outweighed and showing inferior grades to Reward made the best showing, but its lack of high rust-resistant qualities proved a serious handicap. While Reward excelled in bushel weight and commercial grades its relatively low yield

more than outweighed these advantages. In this area which has been subject to severe rust attacks, the poor performance of Marquis is significant.

TABLE No. 10—SUMMARIZED RESULTS FOR ZONE 1A

	Marquis	Ceres	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	10.9	18.2	13.8	23.2	23.2	24.4
Height of plant in inches	34.9	35.5	32.7	33.2	34.2	33.8
Days from seeding to ripening	91.4	89.6	87.1	90.0	90.7	91.1
Straw strength	9.1	8.9	8.4	9.4	9.0	9.2
Bushel weight in pounds	54.4	59.1	62.8	61.2	61.5	61.4
Commercial grades in percentage—1 Hd.	6	18	25	13	25	13
1°	25	25	50	43	44	38
2°	....	13	19	13	19	25
3°	6	13	6	25	6	18
4°	6	13	....	....	....	....
No. 5	13	18	....	....	....	....
No. 6	6	....	....	6	6	6
Feed	38	....	....	....	....	....

Necessary difference—1.2 bushels.

Cereal Variety Zone 1B

Summarized results for Zone 1B are shown in Table No. 11. This zone comprises a relatively large area covering the south-western portion of the province. Many agencies combined in reducing the yields of all varieties. The eastern portion of the region suffered from the rust epidemic while in the western part of the zone inadequate moisture supplies considerably affected the tests. Over practically the whole area grasshoppers caused considerable injury. Reliance was grown as the sixth variety in the zone.

Thatcher excelled in yield, yielding significantly more than all other varieties. In height it slightly exceeded Reliance but was somewhat shorter than the other varieties. Thatcher was two days later than Reward but equalled Renown in earliness and ripened earlier than Reliance, Marquis and Apex by differences of 2 days, 1.5 days and .3 days respectively. In straw strength it equalled Marquis and Renown, was slightly stronger than Reliance and Apex and decidedly stronger than Reward. Thatcher outweighed Renown by almost 1 lb. It equalled Marquis in bushel weight but weighed less than Apex and Reliance, and 3.8 lbs. less than Reward. Nearly all samples contained a large number of bleached and shrunken kernels which seriously affected the commercial grades, and the grades placed on Thatcher were exceeded by all varieties with the exception of Renown. The amount of rust infection appearing on the stems of Thatcher was shown as approximately 1% and this variety appeared decidedly resistant.

Renown ranked second to Thatcher in yielding ability in this zone and it was slightly shorter than Reward but exceeded all other varieties in height, and yielded significantly more than the other varieties. Renown was slightly earlier than Apex, 1.5 days earlier than Marquis, two days earlier than Reliance. It equalled Thatcher in earliness, but was slightly more than two days later than Reward. In straw strength it equalled Marquis and Thatcher, and showed superiority to the other varieties. Renown was low in bushel weight, being exceeded by all varieties by differences ranging from .9 lb. to 4.7 lbs. All samples contained many shrunken, green and some bleached kernels and Renown was inferior to commercial grades to all other varieties. The stem rust infection showing on Renown was approximately equal to the infection appearing on Thatcher.

Apex was third in yield and outyielded Marquis, Reliance and Reward by actual differences which exceeded the necessary difference. It was slightly taller than Thatcher and almost one inch taller than Reliance, but was somewhat exceeded in height by the other varieties. It tied with Marquis. Apex was earlier than Marquis and Reliance by 1.2 days and 1.7 days respectively but was slightly later than Thatcher and Renown and nearly 2.5 days later than Reward. It was slightly superior to Reward in straw strength but was inferior in this characteristic to the other varieties. Apex was exceeded in bushel weight by Reward by a difference of 3.1 lbs. and was slightly exceeded by Reliance. It showed somewhat better weight, however, than the other varieties. All samples contained some shrunken or green kernels but despite these defects, Apex ranked second to Reward in commercial grades. This variety showed less stem rust infection than either Thatcher or Renown and appeared to be practically rust free.

Reliance ranked fourth in yielding ability, yielding significantly more than Reward and Marquis. It was exceeded in height by all other varieties, and was also exceeded in "earliness" by all varieties by differences ranging from .5 day to 4.1 days.

In straw strength Reliance was superior to Reward and showed slight superiority to Apex but was somewhat inferior to the other varieties. In bushel weight it was exceeded by Reward by a difference of 2.6 lbs. but weighed somewhat better than the other varieties. Many samples contained shrunken kernels and in some tests bleached, immature and green kernels were in evidence. These defects resulted in low commercial grades being placed on a number of samples but generally the grades of this variety were fairly satisfactory. Though inferior to Reward and Apex they were superior to Marquis, Thatcher and Renown. The amount of stem rust infection appearing on Reliance was reported to be approximately 10%.

Marquis was fifth in order of yielding ability in this zone but the actual difference between this variety and Reward only equalled the necessary difference. In height Marquis was somewhat taller than Reliance and Thatcher, equalled Apex but was somewhat exceeded by Reward and Renown. With the exception of Reliance, which was .5 day earlier it exceeded all varieties in its maturity period by differences ranging from 1.2 days to 3.6 days. In straw strength it equalled Thatcher and Renown, was slightly superior to Reliance and Apex and decidedly superior to Reward. In bushel weight it outweighed Renown by nearly 1 lb., equalled Thatcher, but weighed less than the other varieties by differences ranging from .7 lb. to 3.8 lbs. Nearly all samples contained many shrunken, bleached and green kernels and Marquis was low in commercial grades. Marquis showed approximately 14% stem rust infection, 4% more infection than Reliance and 5% more than Reward.

Reward was low in yield. It excelled in height and "earliness", but was inferior in straw strength to all other varieties. It excelled in weight and despite the rust epidemic and the presence of some green, shrunken or immature kernels in all samples, generally the defects were not of a serious nature. Some loose smutted heads and a trace of covered smut was reported and Reward also excelled in commercial grades. Reward showed somewhat less rust infection than Marquis or Reliance.

Thatcher excelled in yield in this zone but was inferior to many of the other varieties in bushel weight and commercial grades. Renown yielded comparatively well but was somewhat low in bushel weight and commercial grades. Apex although significantly outyielded by Thatcher and Renown weighed and graded better than these varieties. Reliance was outyielded by the three rust-resistant varieties and showed little advantage in other characteristics. Marquis failed to significantly outyield Reward and was outyielded by all other varieties. It was low in weight and grades. Reward was low in yield but excelled in earliness, bushel weight and commercial grades. The results indicate that Thatcher is at least one of the best varieties for this zone, but the superiority of Apex in bushel weight and commercial grades can hardly be overlooked in the choice of a variety.

TABLE No. 11—SUMMARIZED RESULTS FOR ZONE 1B

	Marquis	Reliance	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	15.7	16.9	15.1	19.6	17.8	18.6
Height of plant in inches	28.7	27.8	29.3	28.3	28.7	29.2
Days from seeding to ripening	90.6	91.1	87.0	89.1	89.4	89.1
Straw strength	9.3	9.1	8.6	9.3	9.0	9.3
Bushel weight in pounds	59.1	60.3	62.9	59.1	59.8	58.2
Commercial grades in percentage—1 Hd.	9	9	27	5	12	....
1°	17	29	39	22	33	11
2°	27	42	17	33	29	27
3°	22	5	12	16	3	24
4°	12	3	3	10	16	19
No. 5	4	5	....	7	5	9
No. 6	2	....	....	5	....	5
Feed	5	5	....	....	....	3
Sample	2	2	....	2	2	2
Rej. 3..	....	....	2	....	....	....

Necessary difference—.6 bushels.

Cereal Variety Zone 2A

The results for Zone 2A are summarized in Table No. 12. This zone represents an area running diagonally from the south-eastern corner of the province to a point a short distance north of Regina. Considerable damage by grasshoppers occurred throughout the whole area. Some tests were totally destroyed and others were so severely damaged the yields were not included in the analysis. The most extensive damage occurred in the southern portion of the zone. Severe stem rust infection was present throughout the entire region. Ceres was grown as the sixth variety in the tests in this zone.

Renown exceeded all other varieties in yield. It failed, however, to yield significantly more than Apex and the actual difference between the yield of Renown and

Thatcher only equalled the necessary difference for the zone. Renown, however, yielded significantly more than the other varieties. In height it exceeded Thatcher by .6 inch, practically equalled Reward but was 1.3 inches shorter than Ceres and slightly shorter than the other varieties. In "earliness" Renown equalled Thatcher, slightly exceeded Marquis and was 1.4 days earlier than Apex. It was, however, later than Ceres and Reward by differences of .7 day and 3.4 days respectively. Renown was slightly superior in straw strength to Thatcher and Apex, somewhat superior to Marquis and Ceres and decidedly superior to Reward. In bushel weight Renown was practically equal to Thatcher but was exceeded by Reward and Apex by differences of 1.6 lbs. and .9 lb. respectively. Its rust resistant qualities are reflected in bushel weight as well as yield, having outweighed Marquis and Ceres by 7.1 lbs. and 2.2 lbs. respectively. Many of the samples contained green kernels, some shrunken grain was also in evidence, and in commercial grades Renown was exceeded by Reward, Apex and Thatcher. It graded somewhat better than Ceres and decidedly better than Marquis. Less than 2% rust infection appeared on the stems of Renown. This variety was highly resistant, being practically immune to infection.

Apex ranked second in yield, but failed to outyield Thatcher by a difference which equalled the necessary difference. It yielded significantly more, however, than Ceres, Reward or Marquis. In height it was slightly shorter than Marquis and was exceeded by Ceres by nearly one inch. It exceeded all other varieties by differences ranging from .4 inch to 1.1 inches. Apex excelled in earliness by differences ranging from 1 day to 4.8 days. In straw strength it was slightly inferior to Renown, equalled Thatcher and was somewhat superior to Marquis and Ceres. It was decidedly superior to Reward in this characteristic. With the exception of Reward which was .7 lb. heavier, Apex exceeded all varieties in bushel weight. It exceeded Thatcher and Renown by .7 lb. and .9 lb. respectively, and its rust resistant qualities are demonstrated in weight as well as yield, having outweighed Marquis and Ceres by 8 lbs. and 3.1 lbs. respectively. Despite the presence of green and shrunken kernels in some samples which considerably lowered the grades, Apex graded well, somewhat exceeding Reward, and showing superiority to the other varieties. The rust infection appearing on the stems of Apex was shown as only approximately 3.5% and this variety proved to be highly rust resistant.

Thatcher was third in yielding ability in this zone and yielded significantly more than Ceres, Reward or Marquis. It was exceeded in height by all varieties by differences ranging from .6 inch to nearly 2 inches. Thatcher was 1.4 days earlier than Apex and somewhat earlier than Marquis, equalled Renown in "earliness" but was later than Ceres and Reward by differences of .7 day and 3.4 days respectively. In straw strength it equalled Apex, was slightly inferior to Renown and slightly superior to Marquis and Ceres. It was decidedly superior to Reward in this characteristic. Thatcher was outweighed by both Reward and Apex by differences of 1.4 lbs. and .7 lb. respectively. It slightly exceeded Renown in bushel weight and outweighed Ceres and Marquis by 2.4 lbs. and 7.3 lbs. respectively, its rust resistance being reflected in bushel weight as well as yield. Nearly all samples contained some green or bleached kernels but generally Thatcher graded well, ranking third in commercial grades to Reward and Apex, but grading considerably better than the other varieties. The amount of rust infection shown on the stems of Thatcher was reported to be approximately 6% but generally this variety appeared to be reasonably rust-resistant.

Ceres ranked fourth in yielding ability and yielded significantly more than Reward and Marquis. It exceeded all varieties in height and with the exception of Reward which was 2.7 days earlier it excelled in earliness. Ceres was slightly superior to Marquis in straw strength and showed a marked superiority to Reward. It was, however, somewhat inferior in this characteristic to Renown, Thatcher and Apex. Ceres exceeded Marquis in bushel weight by nearly 5 lbs. but was outweighed by the other varieties by differences ranging from 2.2 lbs. to 3.8 lbs. Ceres graded decidedly better than Marquis but was inferior in commercial grades to the other varieties. The stems of this variety showed nearly 70% of rust infection, somewhat more infection than that appearing on Reward but approximately 7% less than Marquis. Nearly all tests showed a number of loose smutted heads.

Reward was fifth in yield but yielded significantly more than Marquis. It was slightly taller than Renown and Thatcher but was somewhat exceeded in height by the other varieties. Reward excelled in "earliness," exceeding the other varieties by differences ranging from 2.7 days to 4.8 days. In straw strength it was decidedly inferior to all varieties. It excelled in bushel weight and despite some samples containing green kernels it graded well, nearly equalling Apex and exceeding all other varieties in commercial grades. Reward was somewhat less infected by stem rust than Ceres

and showed decidedly less infection than Marquis. Some loose smutted heads were in evidence and a trace of covered smut was also reported.

Marquis was decidedly low in yield in this zone. It was .7 inch shorter than Ceres, practically equalled Apex, but somewhat taller than the other varieties. It was one day earlier than Apex but was exceeded in earliness by the other varieties by differences ranging from .4 day to 3.8 days. In straw strength it was superior to Reward but slightly inferior to the other varieties. Marquis was low in bushel weight and in commercial grades. Nearly all samples contained badly shrunken and green kernels and the severe rust epidemic is decidedly reflected in bushel weight and commercial grades as well as yield. Marquis was heavily infected by rust, the percentage of rust pustules appearing on the stems of this variety being reported as approximately 75%.

Renown led in yielding ability but failed to yield significantly more than either Apex and Thatcher. It weighed somewhat less than these two varieties and was inferior in commercial grades. Apex outyielded Thatcher by only .5 bushel. Although somewhat later it was slightly superior to this variety in weight and commercial grades. Thatcher was reasonably satisfactory in most characteristics but weighed slightly less than Apex. In commercial grades it was exceeded by Apex but showed superior grades to Renown. The severe rust infection had important repercussions on the susceptible varieties. Ceres significantly outyielded both Reward and Marquis. It was somewhat superior to Marquis in both weight and grades but was decidedly inferior in these characteristics to Reward. Reward yielded significantly more than Marquis and despite the severe rust infection excelled all other varieties in bushel weight and commercial grades. Marquis was more affected by rust than any of the other varieties, being decidedly low in yield, bushel weight and commercial grades.

In this zone where rust epidemics have, in the past, caused such serious losses the widespread use of a rust-resistant variety is important. None of the rust-resistant varieties yielded significantly more than another but the superior weight and commercial grades of Apex is worthy of consideration. Thatcher was also reasonably satisfactory in most characteristics. The wide difference between the yields of the resistant and susceptible varieties emphasize the value of a general use of a rust-resistant wheat in this area. Of the susceptible varieties Reward alone showed some merit, having excelled all varieties in weight. This advantage, however, by no means offset its disadvantage in yield.

TABLE No. 12—SUMMARIZED RESULTS FOR ZONE 2A

	Marquis	Ceres	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	9.1	14.6	13.4	21.5	22.0	22.4
Height of plant in inches	32.5	33.2	32.0	31.3	32.4	31.9
Days from seeding to ripening	89.1	88.0	85.3	88.7	90.1	88.7
Straw strength	9.1	9.2	8.8	9.5	9.5	9.6
Bushel weight in pounds	54.4	59.3	63.1	61.7	62.4	61.5
Commercial grades in percentage—1 Hd.	....	8	30	23	30	8
1°	....	15	30	23	46	30
2°	15	15	23	23	....	30
3°	8	30	8	8	8	15
4°	8	16	9	8	....	....
No. 5	15	16	....	8	8	8
No. 6	30	....	....	7	8	9
Feed	24	....	....	....	....	....

Necessary difference—.9 bushels.

Cereal Variety Zone 2B

Table No. 13 shows the results for Zone 2B. This zone represents a region in the centre of the grain growing areas of the Province. Lack of adequate moisture during a part of the growing season seriously affected many of the tests. Rust infection covered the entire area but was most severe in the north and east. Grasshoppers caused considerable damage through the entire zone. Ceres was grown as the sixth variety in the tests.

Thatcher excelled in yield in this zone, yielding significantly more than any of the other varieties. It was slightly shorter than Reward and Renown, and was exceeded in height by the other varieties by a difference of approximately one inch. In "earliness" Thatcher was exceeded by Reward by a difference of approximately one day. It was, however, nearly two days earlier than Marquis, and approximately one day earlier than the other varieties. Thatcher excelled in straw strength. In bushel weight it exceeded Marquis by a difference of 1.41 lbs. and slightly exceeded Renown. It was, however, outweighed by Reward by a difference of 2.3 lbs. and weighed somewhat less than the other varieties. Bleached kernels were shown in nearly all samples

and some green kernels were also in evidence. Thatcher was exceeded in commercial grades by Reward, Apex and Ceres, but graded slightly better than Renown, and somewhat better than Marquis. Only 2% of rust infection appeared on the stems of this variety.

Renown ranked second in yield. The actual difference between this variety and Apex did not equal the necessary difference for the zone, but Renown yielded significantly more than Ceres, Reward or Marquis. Renown was slightly taller than Reward and Thatcher, but was somewhat shorter than the other varieties. In "earliness" it was exceeded by Reward by nearly two days, Thatcher by nearly one day, and it was slightly later than Ceres. Renown, however, was slightly earlier than Apex and one day earlier than Marquis. In straw strength Renown was slightly inferior to Thatcher, equalled Marquis, and was somewhat superior to the other varieties. Renown weighed 1 lb. more than Marquis, but was exceeded in bushel weight by all other varieties by differences ranging from .4 lb. to 2.7 lbs. Nearly all samples contained shrunken, green or bleached kernels, and, although showing somewhat better grades than Marquis, it was inferior in commercial grades to all other varieties. Only slightly more than 1% rust infection was reported on the stems of Renown and this variety proved highly resistant.

Apex was third in yield, and yielded significantly more than Ceres, Reward and Marquis. It was slightly shorter than Ceres, practically tied in height with Marquis, but was somewhat taller than the other varieties. In "earliness" Apex exceeded Marquis by approximately one day, but was later than the other varieties by differences ranging from .2 day to 2.1 days. It was slightly superior to Reward in straw strength and equalled Ceres in this characteristic. It was, however, slightly inferior to the other varieties. In bushel weight, while Apex was exceeded by Reward by a difference of 1.5 lbs. it outweighed the other varieties by differences ranging from .5 lb. to 2.2 lbs. Despite the presence of some green and shrunken kernels it ranked second to Reward in showing the best commercial grades. Apex appeared to be slightly more affected by stem rust than Thatcher or Renown, but the infection was only of a light nature.

Ceres ranked fourth in yield, and yielded significantly more than Reward or Marquis. It excelled in height, being taller than the other varieties by differences ranging from .5 inch to 1.6 inches. Ceres was nearly two days later than Reward and slightly later than Thatcher. It was, however, 1.2 days earlier than Marquis and slightly earlier than Apex and Renown. In straw strength it was slightly superior to Reward and equalled Apex, but was slightly inferior to the other varieties. In bushel weight Ceres exceeded Marquis by 1.7 lbs. and weighed slightly more than Thatcher and Renown. It was, however, exceeded in weight by Reward and Apex by differences of 2 lbs. and .5 lb. respectively. Many of the samples contained green, bleached or shrunken kernels, but despite these defects Ceres graded relatively well, being exceeded in commercial grades only by Reward and Apex. Ceres showed slightly more stem rust infection than Reward, but the amount of infection was approximately 8% less than Marquis. This variety was quite susceptible to loose smut and a trace of covered smut was also reported in a few tests.

Reward ranked fifth in yield and failed to outyield Marquis by an actual difference which equalled the necessary difference. Although slightly taller than Thatcher, Reward was exceeded in height by all other varieties by differences ranging from .2 inch to 1.4 inches. It excelled in "earliness," being earlier than the other varieties by differences which ranged from 1.1 days to nearly three days. In straw strength Reward was inferior to all varieties. It excelled in bushel weight and despite some samples showing green or bleached kernels it also excelled in commercial grades. Reward showed somewhat less stem rust infection than Ceres and approximately 10% less than Marquis. A number of loose smutted heads were reported in nearly all tests.

Marquis was low in yield. It was slightly shorter than Apex and Ceres, but nearly one inch taller than the other varieties. Marquis was later than all varieties by differences ranging from .8 day to 2.9 days. It was slightly inferior in straw strength to Thatcher, equalled Renown and was somewhat stronger than Apex, Ceres and Reward. The effect of the rust epidemic is reflected in bushel weight and commercial grades as well as yield, Marquis being inferior to all other varieties in both weight and grades. The amount of rust infection appearing on the stems of Marquis was reported to be 24%, approximately 8% more than the infection shown on Ceres and 10% more than Reward.

Thatcher excelled in yield and was reasonably satisfactory in other characteristics. Renown, although significantly outyielded by Thatcher, yielded comparatively well, and in other characteristics showed little difference to this variety. Apex was only slightly inferior to Renown in yield, but exceeded both Thatcher and Renown in bushel weight and commercial grades. Ceres ranked fourth in yield and was sig-

nificantly outyielded by each of the rust-resistant varieties, but showed slightly better weight than Renown and exceeded this variety in commercial grades. Reward was comparatively low in yield but excelled in weight and commercial grades. Marquis yielded slightly less than Reward, and decidedly less than the other varieties. It was also low in bushel weight and commercial grades.

The performance of Thatcher indicates its merits for use in this zone. Apex, although significantly outyielded by Thatcher, showed somewhat better bushel weight and was superior in commercial grades. The rust-resistant qualities of these two varieties is a decided advantage in this zone, a portion at least of which is subject to severe rust infection. Of the varieties susceptible to rust Ceres made the best showing, but its susceptibility to rust is a distinct handicap, and in nearly all characteristics it was exceeded by Thatcher and Apex. Although it excelled in weight and grades, these advantages far from offset the low yield of Reward. Marquis showed no particular merits in this zone.

TABLE No. 13—SUMMARIZED RESULTS FOR ZONE 2B

	Marquis	Ceres	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	13.3	16.8	13.6	20.1	17.9	18.3
Height of plant in inches	29.3	29.9	28.5	28.3	29.4	28.7
Days from seeding to ripening	95.7	94.5	92.8	93.9	94.9	94.7
Straw strength	8.9	8.7	8.3	9.1	8.7	8.9
Bushel weight in pounds	60.2	61.9	63.9	61.6	62.4	61.2
Commercial grades in percentage—1 Hd.	14	28	50	19	39	17
1°	39	33	28	37	30	33
2°	8	25	14	19	11	28
3°	17	8	5	19	14	14
4°	11	3	....	3	3	5
No. 5	11	3	3	3	3	3

Necessary difference—.8 bushel.

Cereal Variety Zone 2C

Summarized results for Zone 2C are given in Table No. 14. This zone consists of a narrow area in the south western part of the province reaching out from the Alberta border. Reliance was grown as the sixth variety in the tests. Lack of adequate moisture supplies tended to reduce the yields of all varieties and damage by grasshoppers and sawflies occurred to all tests. Stem rust was also present, but the degree of infection was not high and some of the tests were rust free.

Thatcher exceeded all other varieties in yield. It failed, however, to yield significantly more than either Renown or Reliance, but outyielded the other varieties by significant differences. Although in both height and straw strength it was exceeded by some varieties, it was reasonably satisfactory in these characteristics. Thatcher was somewhat earlier than Marquis, Reliance and Apex. It was, however, 1.4 days later than Renown, and 3 days later than Reward. With the exception of Renown, which weighed slightly less, it was lower in bushel weight than any of the other varieties. All samples contained bleached kernels, and most samples showed shrunken kernels, and Thatcher was inferior to all varieties in commercial grades. It was practically equal to Renown and Apex in the percentage of stem rust infection, and was apparently highly rust-resistant.

Renown was second in yielding ability, but failed to outyield any of the other varieties by a necessary difference. It was slightly taller than Apex, one inch taller than Marquis and 1.6 inches taller than Reliance, but was slightly shorter than Thatcher and 1.2 inches shorter than Reward. With the exception of Reward, which was 1.6 days earlier, Renown exceeded all other varieties in earliness by differences ranging from 1.4 days to 4.8 days. In straw strength it was slightly stronger than Apex and Reward, but was inferior in this characteristic to the other varieties. Renown was low in bushel weight. All samples contained bleached and shrunken kernels, with the exception of Thatcher. It was exceeded by all varieties in commercial grades. No great difference appears between the amount of stem rust infection appearing on Renown, Apex or Thatcher and Renown was highly resistant.

Reliance, despite rust infection, ranked third in yield in this zone, but failed to yield more than Apex, Reward or Marquis by necessary differences. It was shorter than any of the other varieties, but excelled in straw strength. It was later than all other varieties by differences ranging from 1.4 days to 6.4 days. Many samples contained many shrunken kernels. Reliance ranked second in bushel weight and commercial grades, being exceeded in these characteristics only by Reward. The percentage of stem rust which appeared on Reliance was slightly less than the infection appearing on either the Reward or Marquis varieties.

Apex was fourth in yield, but the actual differences between this variety and Marquis and Reward did not equal the necessary difference. With the exception of Marquis and Reliance it was shorter than any of the other varieties. It was slightly earlier than Marquis and 1.6 days earlier than Reliance, but was later than the other varieties by differences ranging from 1.8 days to 4.8 days. With the exception of Reward, which was slightly weaker, it was inferior in straw strength to all varieties. Apex ranked fourth in bushel weight, exceeding both Thatcher and Renown in this characteristic. Despite shrunken kernels, which appeared in all samples, it also exceeded Thatcher and Renown in commercial grades. Stem rust infection was in evidence, and although Apex appeared to show more infection than Thatcher or Renown, it showed less infection than the other varieties.

Reward ranked fifth in yield in this zone but failed to yield significantly more than Marquis. It was taller than any of the other varieties and excelled in earliness but was inferior to the other varieties in straw strength. Reward excelled in bushel weight. Only a few samples contained shrunken kernels and this variety also excelled in commercial grades. Reward showed somewhat less stem rust infection than Marquis, but appeared to be slightly more infected than Reliance. It also showed more infection than Renown, Thatcher and Apex. In one half of the tests a number of loose smutted heads were in evidence.

Marquis was low in yield. In height it exceeded Reliance but was somewhat shorter than the other varieties. With the exception of Reliance which was nearly 1.5 days later, it was later than all varieties. It showed comparatively strong straw, being exceeded in this characteristic only by Reliance. It exceeded Thatcher, Apex and Renown in bushel weight, but was somewhat lighter than Reliance, and weighed 2.9 lbs. less than Reward. Shrunken kernels were in evidence in many samples, and in a few cases the grain was bleached, but despite these defects Marquis graded relatively well, showing better grades than Apex, Thatcher and Renown. While stem rust infection was comparatively light, Marquis showed somewhat more infection than the other varieties.

In general, although Thatcher led in yielding ability, its yielding performance was somewhat offset by its low bushel weight and commercial grades. Renown was also low in weight and grades. Apex, although outyielded by Thatcher by a necessary difference, exceeded both Thatcher and Renown in weight per measured bushel and commercial grades. While this zone has in the past escaped any serious rust injury, the presence of infection during the last season cannot be entirely disregarded, and the general performances of the rust-resistant varieties appear worthy of some consideration. Of the rust susceptible varieties Reliance led in yield, but failed to outyield Marquis or Reward by a necessary difference. In most characteristics, however, it was reasonably satisfactory, and in this area which has not been seriously affected by rust should not be overlooked in a choice of a variety for this zone. The general performance of Reward is also deserving of consideration.

TABLE No. 14—SUMMARIZED RESULTS FOR ZONE 2C

	Marquis	Reliance	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	19.0	20.4	19.4	21.8	19.5	21.0
Height of plant in inches	28.0	27.4	30.2	29.4	28.6	29.0
Days from seeding to ripening	93.2	94.6	88.2	91.2	93.0	89.8
Straw strength	9.2	9.3	8.5	8.9	8.6	8.7
Bushel weight in pounds	60.2	61.4	63.1	58.3	59.9	58.1
Commercial grades in percentage—1 Hd.	33	33	67	....	17	....
1°	17	50	33	17	50	17
2°	33	....	....	33	17	50
3°	17	17	....	17	....	17
4°	....	....	....	17	16	....
No. 5	....	....	....	....	....	16
No. 6	....	....	....	16	....	....

Necessary difference—2.2 bushels.

Cereal Variety Zone 2D

The results for Zone 2D are shown in Table No. 15. This zone consists of a relatively small area in the north west adjoining the Alberta border. Reliance was grown as the sixth variety in the tests. Light grasshopper damage occurred during the early growing season and further injury was caused prior to harvest. Sawflies also caused damage to many tests. Stem rust was in evidence, but the infection was only of a relatively light nature.

Reliance excelled in yield, and outyielded all varieties, with the exception of Thatcher, by a necessary difference. It was exceeded in height by all other varieties. Reliance was earlier than Marquis but somewhat later than the other varieties. It

was weaker in straw than Marquis and slightly weaker than Thatcher and Renown. It equalled Apex, however, and exceeded Reward in this characteristic. Reliance was exceeded by Reward by a difference of 1.5 lbs. in weight per measured bushel . It also weighed slightly less than Apex, but exceeded all other varieties in bushel weight. All samples contained a superabundance of green kernels, and with the exception of Renown, Reliance graded lower than all other varieties. The percentage of stem rust infection appearing on Reliance was slightly less than Reward and approximately one-third of the infection visible on the Marquis variety. It showed, however, approximately seven times more infection than Thatcher, Apex and Renown.

Thatcher ranked second in yielding ability in this zone. It failed to outyield Apex by a necessary difference, but yielded significantly more than Renown, Marquis or Reward. With the exception of Reliance, which was .7 inch shorter, Thatcher was exceeded in height by all other varieties. It practically equalled Apex in its maturity period. It was 1.6 days later than Reward, but exceeded Marquis, Reliance and Renown by 2.9 days, 1.5 days and .4 day respectively. In straw strength Thatcher was inferior to Marquis, equalled Renown, but showed superiority in this characteristic to Reliance, Reward and Apex. Thatcher slightly exceeded Renown in bushel weight, but was exceeded in weight by all other varieties. All samples contained green kernels and many bleached kernels were also in evidence, but despite these defects Thatcher graded reasonably well, being exceeded only by Reward and Apex. Thatcher appeared to be practically immune to rust infection.

Apex was third in yielding ability in this zone. It outyielded Renown by a difference which was barely significant, but yielded significantly more than Marquis and Reward. With the exception of Marquis, which was nearly one inch taller, it exceeded all varieties in height, being slightly taller than Renown and Reward, nearly two inches taller than Reliance and one inch taller than Thatcher. In earliness Apex was exceeded by Reward by 1.5 days, but was earlier than the other varieties by differences ranging from .1 day to 3 days. In straw strength it was somewhat superior to Reward, equalled Reliance, but was slightly inferior to the other varieties. In bushel weight Apex was exceeded by Reward by 1.3 lbs., but weighed better than the other varieties by differences ranging from .2 lb. to 1 lb. Although all samples contained green kernels, Apex exceeded all varieties in commercial grades. Some stem rust was in evidence, but Apex was only infected to a slight degree and this variety appeared to be highly resistant.

Renown was fourth in yield. It failed to outyield Marquis by a necessary difference, but yielded significantly more than Reward. Renown was approximately one inch shorter than Marquis, and slightly shorter than Apex, but exceeded the other varieties in height by differences ranging from .4 inch to 1.7 inches. In earliness it exceeded Marquis and Reliance by 2.5 days and 1.1 days respectively. It was, however, later than all other varieties by differences ranging from .4 day to 2 days. The straw of Renown equalled Thatcher, was slightly weaker than Marquis, but showed superiority to the other varieties. Renown was low in bushel weight being exceeded by all other varieties in the zone by differences ranging from .2 lb. to 2.5 lbs. All tests showed an abundance of green kernels, and although little difference is noted between the commercial grades placed on Renown and Reliance, Renown graded lower than the other varieties. Renown appeared to be practically immune to rust infection in this zone.

Marquis ranked fifth in yield, yielding significantly more than Reward. It excelled in height, exceeding Apex, the next tallest variety, by nearly one inch. It was later than all other varieties by differences ranging from 1.4 days to 4.5 days. It exceeded all varieties in straw strength. In bushel weight Marquis slightly exceeded Thatcher and Renown, but was outweighed by the other varieties. All samples contained a superabundance of green kernels, and Marquis was somewhat low in commercial grades. The percentage of stem rust appearing on Marquis considerably exceeded the infection of Reliance and Reward.

Reward was low in yield in this zone. In height it slightly exceeded Thatcher and was 1.3 inches taller than Reliance, but was somewhat shorter than the other varieties. Reward excelled in earliness, exceeding the other varieties by differences ranging from 1.5 days to 4.5 days. It was exceeded in straw strength by all varieties, being slightly weaker than Reliance and Apex and decidedly weaker than the other varieties. Reward excelled in bushel weight, outweighing all varieties by differences ranging from 1.3 lbs. to 2.5 lbs. It was exceeded in commercial grades by Apex, but showed better grades than the other varieties. Some loose smutted heads were noted in a number of tests.

Reliance, although low in commercial grades, was reasonably satisfactory in other characteristics and relatively high in bushel weight, which, with its advantage in yield, indicates its merits for use in this zone. While stem rust was not an im-

portant influence in this area during the past year, the expansion of the area affected by rust infection suggests the usefulness of a rust-resistant variety in the zone. Thatcher, although satisfactory in most characteristics, failed to yield significantly more than Apex, and the superiority of the latter variety in both bushel weight and commercial grades appears worthy of consideration.

TABLE No. 15—SUMMARIZED RESULTS FOR ZONE 2D

	Marquis	Reliance	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	17.8	20.5	13.3	20.0	19.1	17.9
Height in plant inches	31.2	28.4	29.7	29.1	30.3	30.1
Days from seeding to ripening	98.0	96.6	93.5	95.1	95.0	95.5
Straw strength	9.4	8.9	8.6	9.1	8.9	9.1
Bushel weight in pounds	63.3	64.0	65.5	63.2	64.2	63.0
Commercial grades in percentage—1 Hd.	7	....	8	8	15	....
1°	14	8	28	28	28	28
2°	21	28	22	8	8	8
3°	14	21	14	28	21	36
4°	....	21	28	28	28	7
No. 5	44	22	....	....	....	21

Necessary difference—1.0 bushels.

Cereal Variety Zone 3A

Summarized results for Zone 3A are given in Table No. 16. This zone comprises an area in the south eastern part of the province. Grasshoppers caused considerable damage throughout the entire zone, and a number of tests, particularly in the southern portion of the area, were totally destroyed. Stem rust infection was also severe over the entire region. Ceres was grown as the sixth variety in the tests.

Renown excelled in yield per acre in this zone, yielding significantly more than any of the other varieties. In height it exceeded Reward and Thatcher by slight differences, but was somewhat shorter than the other varieties. It was nearly one day later than Ceres and Thatcher and 3.4 days later than Reward, but approximately one day earlier than Marquis and Apex. In straw strength it equalled both Thatcher and Apex, was superior to Marquis and Ceres, and definitely superior to Reward. Renown was slightly exceeded in bushel weight by Apex, but exceeded both Thatcher and Reward by approximately .5 lb. and outweighed Marquis and Ceres by 8.2 lbs. and 3.3 lbs. respectively. All samples contained green kernels, and Renown ranked fourth in commercial grades, being exceeded by Thatcher, Apex, and Reward. The stems of this variety showed less than 1% of rust pustules, and Renown was highly resistant to stem rust infection.

Thatcher ranked second in yielding ability, but the actual difference between this variety and Apex did not equal the necessary difference. Thatcher, however, yielded significantly more than Ceres, Reward, and Marquis. It was slightly taller than Reward, but slightly shorter than Renown, nearly one inch shorter than Apex and approximately 1.5 inches shorter than Marquis and Ceres. It was approximately 2.5 days later than Reward, equalled Ceres in its maturity period, exceeded Renown and Apex by .8 day and 1.5 days respectively, and was more than two days earlier than Marquis. In straw strength Thatcher equalled both Apex and Renown, showed superiority in this characteristic to Marquis and Ceres, and was definitely superior to Reward. Thatcher weighed only very slightly less than Reward, but was approximately .5 lb. less than Apex and Renown. It outweighed both Marquis and Ceres by 7.6 lbs. and 2.7 lbs. respectively. Despite the presence of many green and some bleached kernels Thatcher graded relatively well. The stems of Thatcher showed approximately 3% of rust pustules and this variety appeared to be reasonably resistant to the rust attack.

Apex was third in yield and yielded significantly more than the Marquis, Ceres and Reward varieties. It was shorter than Marquis and Ceres by nearly 1 inch, but was somewhat taller than the other varieties. Apex was exceeded in its maturity period by Marquis by .6 day, but was earlier than the other varieties by differences ranging from .7 day to 4.1 days. In straw strength it equalled Thatcher and Renown, but was stronger than Marquis and Ceres and decidedly stronger than Reward. It weighed slightly more than Renown, approximately three-quarters of a pound more than Reward and Thatcher, and outweighed Marquis and Ceres by 8.3 lbs. and 3.4 lbs. respectively. Despite green kernels Apex graded comparatively well although it showed inferior grades to Reward and Thatcher. The degree of rust infection shown on the stems of Apex only slightly exceeded the infection shown on Renown, and Apex proved to be highly resistant.

Ceres was fourth in yield and outyielded both Marquis and Reward by differences which exceeded the necessary difference. Ceres excelled in height. It equalled Thatcher in its maturity period, was 2.6 days later than Reward, but was earlier than the other varieties by differences ranging from .8 day to 2.1 days. In straw strength it exceeded Reward, but was slightly weaker than Marquis and definitely weaker than the other varieties. Ceres weighed 4.9 lbs. more than Marquis but was exceeded in weight by the other varieties by differences ranging from 2.7 lbs. to 3.4 lbs. All samples contained some green, shrunken or light-weight kernels, but despite these defects, and in view of the heavy rust infection it graded reasonably well; although exceeded by all other varieties it graded considerably better than Marquis. Little difference appeared between the amount of rust infection appearing on the stems of Ceres and Reward, the degree of infection being shown as approximately 56%, which was 8% less than that appearing on the Marquis variety. This variety appeared to be very susceptible to loose smut and a trace of covered smut was also reported.

Reward ranked fifth in yielding ability and yielded significantly more than Marquis. It was exceeded in height by all varieties by differences ranging from .3 inch to 2.1 inches. It excelled in "earliness" but was decidedly inferior to all varieties in straw strength. It was outweighed by Apex and Renown by approximately .5 lb., was only slightly superior in weight to Thatcher, but exceeded Marquis and Ceres by 7.7 lbs. and 2.8 lbs. respectively. Despite the presence of some green kernels Reward excelled in commercial grades. The percentage of rust pustules appearing on the stems of Reward was shown as approximately 50%. The susceptibility of this variety equalled that of Ceres, but it appeared to be somewhat less susceptible than Marquis, the difference in the percentage of rust infection appearing on the stems being shown as approximately 8%. A few loose smutted heads were reported in nearly all tests.

Marquis was outyielded by all varieties. It was slightly exceeded in height by Ceres, but was taller than the other varieties. It was later than all varieties by differences ranging from .6 day to 4.7 days. It slightly exceeded Ceres in straw strength and was definitely superior in this characteristic to Reward. It was, however, inferior to the other varieties. It was low in bushel weight, being 4.9 lbs. lighter than Ceres, approximately 7.5 lbs. lighter than Reward and Thatcher, and 8.3 lbs. lighter than Apex and Renown. All samples contained badly shrunken kernels, and Marquis was low in commercial grades. Marquis showed a greater degree of rust infection than the other varieties, the percentage of pustules appearing on the stems being reported as 65%.

Renown excelled in yield and in other characteristics was reasonably satisfactory. Thatcher, while significantly outyielded by Renown, and showing some inferiority in bushel weight, graded better than the latter variety. Apex, although significantly outyielded by Renown, was not exceeded in yield by Thatcher by an actual difference which equalled the necessary difference for the zone. It showed slightly better bushel weight than Renown and weighed somewhat better than Thatcher. It practically equalled Thatcher and was superior to Renown in commercial grades. Of the varieties susceptible to rust Ceres excelled in yield but was exceeded by Reward in bushel weight and commercial grades. The severe rust infection resulted in Marquis making a very poor showing, being decidedly low in yield, bushel weight, and grade. In this area where rust epidemics have occurred all too frequently the advantages of a wheat variety with high rust-resistant qualities are manifest. The performance of Renown indicates its worthiness for use in this zone, but the somewhat superior grades of Thatcher and Apex may influence the choice of a variety considerably.

TABLE No. 16—SUMMARIZED RESULTS FOR ZONE 3A

	Marquis	Ceres	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	11.8	18.1	16.4	25.1	24.6	26.5
Height of plant in inches	33.0	33.3	31.2	31.5	32.3	31.9
Days from seeding to ripening	97.7	95.6	93.0	95.6	97.1	96.4
Straw strength	8.4	8.2	7.7	9.2	9.2	9.2
Bushel weight in pounds	54.1	59.0	61.8	61.7	62.4	62.3
Commercial grades in percentage—1 Hd.	....	....	....	7	....	....
1°	....	7	53	13	40	33
2°	13	53	27	46	33	13
3°	....	20	13	27	20	40
4°	33	13	....	7	7	14
No. 5	27	7	....	....	....	....
No. 6	7	....	....	....	....	....
Feed	20	....	....	....	....	....
Rej. 3	....	....	7	....	....	....

Necessary difference—1.2 bushels.

Cereal Variety Zone 3B

The results for Zone 3B appear in Table No. 17. This zone comprises a small area in the east central part of the province adjoining the Manitoba border. Pests were a relatively minor factor but stem rust infection was severe. Ceres was grown as the sixth variety in the tests.

Renown excelled in yield in this zone, yielding significantly more than any of the other varieties. In height it was exceeded by Marquis and Ceres by approximately 1.5 inches, but was taller than the other varieties by differences ranging from .5 inch to 1.5 inches. It was later than the other varieties by differences which ranged from .2 day to 4.5 days. In straw strength Renown was somewhat inferior to Thatcher and Apex, but slightly superior to Reward, and decidedly superior to Marquis and Ceres. Renown was practically equal to Reward, Thatcher and Apex in bushel weight, but the effect of infection is reflected in a comparison with the weight of this variety and Ceres and Marquis, Renown having outweighed these varieties by 3.3 lbs. and 8.1 lbs. respectively. Green kernels were in evidence in all samples, and with the exception of Marquis and Ceres, Renown was lower in commercial grades than any of the other varieties. Renown showed less than 1% stem rust infection, and proved to be highly resistant.

Thatcher was second in yielding ability. It failed to yield significantly more than Apex but outyielded Marquis, Ceres and Reward by necessary differences. With the exception of Reward, which was slightly shorter, it was exceeded in height by all varieties. In earliness Thatcher was approximately equal to Marquis, 1 day earlier than Apex and Renown, but later than Ceres and Reward by differences of 1.3 days and 3.3 days respectively. Thatcher excelled in straw strength and showed marked superiority to Marquis and Ceres. Little difference appeared between the bushel weight of Thatcher and Apex, Renown or Reward, but the rust resistance of Thatcher is reflected by the difference in the weight of this variety and Marquis or Ceres, the two latter varieties having been outweighed by differences of 8.1 lbs. and 3.3 lbs. respectively. While some bleached and green kernels were in evidence in a number of samples Thatcher excelled in commercial grades. The amount of stem rust infection appearing on Thatcher was reported to be only 2.5%. This was slightly more than the infection appearing on Renown or Apex, but Thatcher proved to be highly resistant.

Apex was third in yielding ability and yielded significantly more than Ceres, Reward and Marquis. In height it was slightly exceeded by Renown and exceeded by Marquis and Ceres by almost 2 inches. It exceeded Reward and Thatcher in height by 1 inch and .8 inch respectively. Apex was slightly earlier than Renown but was later than the other varieties by differences ranging from .8 day to 4.3 days. In straw strength Apex was slightly inferior to Thatcher, somewhat superior to Reward and Renown and decidedly superior to Marquis and Ceres. Apex practically equalled Thatcher, Renown and Reward in bushel weight, but its rust resistant qualities gave it an advantage in weight over Marquis and Ceres of 8 lbs. and 3.2 lbs. respectively. The samples of Apex contained many green kernels, and this variety ranked third in commercial grades, being exceeded by Reward and Thatcher. Only a trace of rust infection appeared on the stem of Apex, and this variety proved to be highly rust resistant.

Ceres was fourth in yield. The actual difference between this variety and Reward did not equal the necessary difference, but Ceres yielded significantly more than Marquis. It excelled in height, being slightly taller than Marquis and somewhat taller than the other varieties. With the exception of Reward which was two days earlier, it exceeded all varieties in earliness by differences ranging from 1.3 days to 2.5 days. In straw strength Ceres was slightly superior to Marquis, but decidedly inferior to the other varieties. It exceeded Marquis in bushel weight by nearly 5 lbs., but was outweighed by Reward and the rust-resistant varieties by more than 3 lbs. All samples contained many shrunken and green kernels, and these defects, together with relatively low weight, gave Ceres lower grades than any variety with the exception of Marquis. This variety was heavily infected with loose smut, and a trace of covered smut was also reported. Ceres showed approximately 75% rust infection, and, while this was 20% less than the infection appearing on Thatcher, it was 20% more than that which appeared on the stems of Reward.

Reward ranked fifth in yielding ability and yielded significantly more than Marquis. It was exceeded in height by all varieties by differences ranging from .2 inch to 3 inches. Reward excelled in earliness, being earlier than the other varieties by differences which ranged from 2 days to 4.5 days. In straw strength it was slightly inferior to Thatcher, Apex and Renown, but was superior to Marquis and Ceres. Despite rust infection Reward was high in bushel weight, slightly outweighing the rust-resistant varieties and exceeding Marquis and Ceres by 8.3 lbs. and 3.5 lbs. respect-

ively. Nearly all samples contained some shrunken or green kernels, but despite these defects Reward graded relatively well, being surpassed in commercial grades only by Thatcher. Some loose smutted heads were reported in all tests. The amount of rust infection appearing on the stem of Reward was reported to be 50%. This was 20% less infection than shown on Ceres and 40% less than Marquis.

Marquis was low in yield. In height it was practically equal to Ceres but exceeded the other varieties by differences ranging from 1.4 inches to nearly 3 inches. Marquis ripened earlier than Apex and Renown by approximately 1 day, was practically equal to Thatcher in earliness, but was later than Ceres and Reward by differences of 1.5 days and 3.5 days respectively. In straw strength it was slightly inferior to Ceres and decidedly inferior to the other varieties. The susceptibility to stem rust of the Marquis variety is reflected in bushel weight as well as yield. It weighed nearly 5 lbs. less than Ceres and was exceeded in weight by the other varieties by differences of approximately 8 lbs. All samples contained an abundance of shrunken and green kernels, and Marquis was considerably inferior to all varieties in commercial grades. Marquis was more heavily infected with stem rust than any of the other varieties, the amount of infection being reported at 95%.

Renown made distinctly the best showing in this zone, excelling in yield and weighing decidedly well. In other characteristics it was also reasonably satisfactory. Thatcher failed to yield significantly more than Apex but showed better commercial grades. Ceres failed to yield significantly more than Reward, and the latter variety held a distinct advantage in bushel weight and commercial grades. Because of the severe rust attack Marquis was distinctly inferior to all varieties. While the comparative performance of the rust-resistant varieties was better than could be expected if the average of several years' results were obtained, the frequency of rust epidemics in this area definitely points to the importance of the use of a rust-resistant variety. The performance of Renown indicates that it is at least one of the best varieties for this zone.

TABLE No. 17—SUMMARIZED RESULTS FOR ZONE 3B

	Marquis	Ceres	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	16.9	24.2	22.6	33.9	33.6	37.3
Height of plant in inches	39.2	39.3	36.3	36.5	37.3	37.8
Days from seeding to ripening	96.2	94.7	92.7	96	97	97.2
Straw strength	7.2	7.3	8.1	8.8	8.5	8.2
Bushel weight in pounds	55.3	60.1	63.6	63.4	63.3	63.4
Commercial grades in percentage—1 Hd.	....	....	12	12	....	....
1°	....	25	38	38	50	25
2°	25	50	38	50	38	50
3°	....	12	12	....	12	25
4°	37	....	....	....	....	....
5°	25	13	....	....	....	....
Feed	13	....	....	....	....	....

Necessary difference—2.1 bushels.

Summarized Results for Zone 3C

Summarized results for Zone 3C are presented in Table No. 18. This zone comprises an area in the east-central portion of the province. Moisture conditions were generally satisfactory but stem rust infection, although developing somewhat late in the season, considerably damaged the susceptible varieties. Injury by pests was relatively light, only a few tests being seriously damaged by grasshoppers. Ceres was grown as the sixth variety in the tests in this zone.

Renown was high in yield, but the actual difference between this variety and Thatcher barely equalled the necessary difference. Renown, however, yielded significantly more than the other varieties. It was practically equal in height to Marquis and Ceres and exceeded Thatcher by 2.2 inches. It also exceeded Reward and Apex by approximately 1.5 inches. With the exception of Apex, which was slightly later, Renown was later than all varieties by differences ranging from .5 day to 4.9 days. Renown equalled Marquis in straw strength, was slightly inferior to Thatcher, but somewhat superior to the other varieties. It weighed slightly less than Apex but .5 lb. more than Thatcher and 1.3 lbs. more than Reward. The rust-resistant qualities of Renown are reflected in bushel weight as well as yield, having outweighed Marquis and Ceres by 10.3 lbs. and 5.6 lbs. respectively. Some samples showed a few shrunken and green kernels, but these defects were not of a serious nature, and Renown graded well, being exceeded only by Apex in commercial grades. It exceeded both Marquis and Ceres in grades by wide differences. Less rust infection appeared on the stems of Renown than on any varieties, the percentage of infection being shown as only 3%, and this variety proved to be highly rust-resistant.

Thatcher ranked second in yielding ability. The actual difference between this variety and Apex did not equal the necessary difference for the zone, but Thatcher significantly outyielded Ceres, Reward and Marquis. In height it was exceeded by all varieties by differences ranging from .6 inch to 2.3 inches. It exceeded Apex and Renown in earliness by only .5 day and was later than the other varieties by differences which ranged from 1.5 days to 4.4 days. It excelled in straw strength, being slightly superior to Marquis and Renown and decidedly superior to the other varieties. In weight, Thatcher was exceeded by Apex and Renown by approximately .5 lb. It outweighed Reward by .8 lb. and its resistance to rust is demonstrated in the difference appearing between the weights of this variety and Marquis and Ceres, Thatcher having exceeded these varieties in weight by 9.8 lbs. and 5.1 lbs. respectively. Many samples showed bleached and shrunken kernels. Thatcher practically tied with Reward in commercial grades, graded somewhat lower than Renown and was distinctly inferior to Apex. It exceeded Marquis and Ceres by wide differences. Little difference appeared in the amount of rust infection appearing on the stems of Thatcher and Apex. The percentage was somewhat more than Renown, but considerably less than the other varieties.

Apex was third in yield and yielded significantly more than Ceres, Reward and Marquis. With the exception of Thatcher, which was .6 inch shorter, it was exceeded in height by all varieties, being slightly shorter than Reward, and was exceeded by the other varieties by more than 1½ inches. Apex was later than the other varieties by differences ranging from .2 day to 5.1 days. In straw strength Apex was slightly inferior to Ceres and Reward and distinctly inferior to the other varieties. It excelled in bushel weight, exceeding Reward, Thatcher and Renown by differences of 1.5 lbs., .7 lb., .2 lb. respectively. Its resistance to rust is shown in bushel weight as well as yield, having outweighed Marquis and Ceres by 10.5 lbs. and 5.8 lbs. respectively. Although some shrunken and green kernels were in evidence, Apex also excelled in commercial grades. Rust infection appearing on the stems of Apex, although somewhat more than Renown and equal to Thatcher, was only of a light nature, and this variety proved to be highly rust-resistant.

Ceres ranked fourth in yielding ability. The actual difference between this variety and Reward did not, however, equal the necessary difference for the zone, but Ceres yielded significantly more than Marquis. It equalled Marquis in height, but was exceeded by the other varieties by differences ranging from .1 inch to 2.3 inches. With the exception of Reward, which was 2.3 days earlier, Ceres exceeded all varieties in "earliness" by differences which ranged from .6 day to 2.8 days. In straw strength, Ceres slightly exceeded Apex, but was slightly inferior to Reward and somewhat inferior to all other varieties. It outweighed Marquis by 4.7 lbs., but was exceeded in weight by the other varieties by differences ranging from 4.3 lbs. to 5.8 lbs. Shrunken kernels were in evidence in all samples, and with the exception of Marquis, which graded distinctly lower, Ceres was exceeded in commercial grades by all varieties. The amount of stem rust infection appearing on the stems of Ceres approximately equalled the amount of infection on Reward, but this variety showed approximately 15% less infection than Marquis. All tests showed a number of loose smutted heads.

Reward was fifth in yield in this zone and yielded significantly more than Marquis. In height it exceeded Thatcher by .7 inch, and was slightly taller than Apex. It was, however, approximately 1.5 inches shorter than the other varieties. Reward excelled in earliness, exceeding the other varieties by differences ranging from 2.3 days to 5.1 days. In straw strength it was slightly superior to Ceres and Apex, but somewhat inferior to the other varieties. Reward outweighed Marquis and Ceres by differences of 9 lbs. and 4.3 lbs. respectively, but was exceeded in weight by the rust-resistant varieties by differences ranging from .8 lb. to 1.5 lbs. Many samples contained some shrunken and green kernels, and although Reward approximately equalled Thatcher in commercial grades it showed inferior grades to both Apex and Renown. It graded distinctly better, however, than Marquis and Ceres. Reward showed approximately the same amount of rust infection as Ceres, but approximately 15% less infection than Marquis. A few loose smutted heads were reported in nearly all tests.

Marquis was distinctly low in yield. It tied with Ceres in height but exceeded the other varieties by differences ranging from .1 inch to 2.3 inches. In earliness, Marquis exceeded Apex, Renown and Thatcher by differences of 2.2 days, 2 days and 1.5 days respectively. It was, however, .6 day later than Ceres and nearly three days later than Reward. Marquis tied with Renown in straw strength, was slightly inferior to Thatcher, but superior to the other varieties. The heavy rust infection is distinctly reflected in both bushel weight and commercial grades of the Marquis variety. In bushel weight it was exceeded by all varieties by differences ranging from 4.7 lbs. to 10.5 lbs. In commercial grades Marquis was somewhat inferior to Ceres and distinctly inferior to the other varieties, all samples being badly shrunken. The

amount of rust appearing on the stems of this variety was reported as approximately 75%.

Renown, although high in yield, showed an actual difference from Thatcher which only equalled the necessary difference for the zone but somewhat exceeded Thatcher in bushel weight and was superior in commercial grades. Apex, while outyielded by both Renown and Thatcher, showed better weight and distinct superiority in commercial grades to both of these varieties. Ceres and Reward were practically equal in yield, but Reward showed a decided advantage in commercial grades. Marquis was most severely injured by rust and showed marked inferiority in yield, weight and grades. The performance of Renown in yield, bushel weight and commercial grades clearly indicates its merits for use in this area. Thatcher also made a relatively good showing, while the lower yield of Apex is to a great extent offset by superiority in weight and grades. Of the varieties susceptible to rust, Ceres, although slightly exceeding Reward, in yield, showed decided inferiority in commercial grades. Marquis was most severely affected by rust and was very inferior to all other varieties in yield, bushel weight and commercial grades.

TABLE No. 18—SUMMARIZED RESULTS FOR ZONE 3C

	Marquis	Ceres	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	13.5	19.7	19.1	28.5	27.4	29.8
Height of plant in inches	38.9	38.9	37.3	36.6	37.2	38.8
Days from seeding to ripening	98.4	97.8	95.5	99.9	100.6	100.4
Straw strength	9.0	8.4	8.5	9.1	8.1	9.0
Bushel weight in pounds	52.4	57.1	61.4	62.2	62.9	62.7
Commercial grades in percentage—1 Hd.	....	....	13	6	44	12
1°	6	19	30	56	30	50
2°	6	19	19	25	13	19
3°	25	19	25	13	13	19
4°	6	6	13	....	....	....
No. 5	6	19	....	....	....	....
No. 6	13	12	....	....	....	....
Feed	38	6	....	....	....	....

Necessary difference—1.3 bushels.

Cereal Variety Zone 3D

The results for Zone 3D are summarized in Table No. 19. This zone consists of a relatively small area in the north eastern part of the province. All tests suffered severely from drought conditions in the early growing season. Good rains during July improved conditions considerably but stem rust infection, which occurred later in the season, took a heavy toll of all tests. Some damage by grasshoppers was also reported. Garnet was grown as the sixth variety in the tests.

Renown was high in yield, but the actual differences between this variety and both Apex and Thatcher did not equal the necessary difference. Renown, however, yielded significantly more than the other varieties. It exceeded all varieties in height by differences ranging from .9 inch to 5.3 inches. Renown was 1.7 days earlier than Apex and slightly earlier than Marquis, but was later than the other varieties by differences which ranged from .5 day to 4.4 days. It tied with Apex in the strength of straw but was superior to the other varieties in this characteristic, showing decided superiority to Garnet, Reward and Thatcher. In bushel weight it was slightly inferior to Apex and was exceeded by Reward by a difference of 1.4 lbs. It weighed slightly more than Thatcher and exceeded Marquis and Garnet by 2.4 lbs. and 1.2 lbs. respectively. Some green, bleached, or immature kernels were in evidence in all samples. These defects considerably affected the commercial grades, and with the exception of Marquis, Renown graded lower than any of the varieties. The amount of rust infection appearing on the stems of Renown was reported to be only approximately 1%, and Renown proved to be highly resistant to this disease.

Thatcher ranked second in yielding ability in this zone. It failed to outyield Apex by an actual difference which equalled the necessary difference, but yielded significantly more than Marquis, Reward or Garnet. Thatcher exceeded Reward and Garnet in height by .5 inch and 2.6 inches respectively, but was shorter than the other varieties by differences ranging from 1 inch to 2.7 inches. In earliness it was exceeded by Garnet and Reward by differences of 3.9 days and 2.4 days respectively, but ripened earlier than Apex, Marquis and Renown by 2.2 days, 1 day and .5 day respectively. With the exception of Garnet, which was slightly weaker, the straw of Thatcher was weaker than all varieties. It was slightly exceeded in weight per measured bushel by Apex and Renown and weighed 1.6 lbs. less than Reward. It exceeded Garnet and Marquis, however, by 1 lb. and 2.2 lbs. respectively. Bleached, green, or immature kernels were in evidence in nearly all samples, but despite these defects

Thatcher graded reasonably well, being outgraded only by Reward and Apex. While the amount of rust infection appearing on the stems of Thatcher was reported to be heavier than that showing on Renown or Apex, it was distinctly less than the infection on the other varieties and this variety was reasonably resistant.

Apex was third in yield and yielded significantly more than Marquis, Reward and Garnet. It was exceeded in height by Renown and Marquis by differences of 1.7 inches and .8 inch respectively. It was taller than the other varieties, however, by differences ranging from 1 inch to 3.6 inches. Apex was later than the other varieties by differences which ranged from 1.2 days to 6.1 days. In straw strength it equalled Renown, was slightly superior to Marquis and decidedly superior to Garnet, Thatcher and Reward. With the exception of Reward, which was 1.3 lbs. heavier, Apex exceeded all varieties in bushel weight. It outweighed Thatcher and Renown by only slight differences, but exceeded Marquis and Garnet in weight by 2.5 lbs. and 1.3 lbs. respectively. Although all samples contained some kernels which were somewhat affected by bleach, green or blackpoint, Apex graded well, being exceeded in commercial grades only by Reward. The amount of rust infection appearing on the stems of this variety was only equal to the infection of Renown, and Apex was highly resistant.

Reward equalled Marquis in yielding ability. The actual difference between this variety and Garnet failed to equal the necessary difference for the zone. With the exception of Garnet, which was 2.1 inches shorter, it was exceeded in height by all varieties by differences ranging from .5 inch to 3.2 inches. Reward was exceeded in "earliness" by Garnet by a difference of 1.5 days, but was earlier than the other varieties by differences ranging from 2.4 days to 4.6 days. In straw strength it was superior to Garnet and Thatcher, but was inferior to the other varieties. Reward excelled in weight per measured bushel, exceeding the other varieties by differences ranging from 1.3 lbs. to 3.8 lbs. Only a few samples showed some green or bleached kernels and Reward also excelled in commercial grades. The amount of rust infection appearing on the stems of Reward was reported to be 20%. This was approximately 17% less than the infection appearing on Garnet and 26% less than Marquis. A number of tests showed loose smutted heads.

Marquis equalled Reward in yield and failed to outyield Garnet by an actual difference equalling the necessary difference. In height it was exceeded by Renown by a difference of approximately 1 inch, but was taller than any of the other varieties by differences ranging from .8 inch to 4.4 inches. Marquis exceeded Apex in "earliness" by a difference of 1.2 days, but was later than the other varieties, by differences ranging from .5 day to 4.9 days. It was somewhat inferior in straw strength to Apex and Renown, but was superior in this characteristic to the other varieties. Stem rust is reflected in weight per measured bushel and in commercial grades as well as yields, Marquis being outweighed by all varieties by differences ranging from 1.2 lbs. to 3.8 lbs. The relatively light weight and an abundance of shrunken, green, and immature kernels resulted in comparatively low grades. Marquis showed the highest degree of stem rust infection, the amount of infection being reported as 46%.

Garnet was low in yield in this zone. It was exceeded in height by all varieties by differences ranging from 2.1 inches to 5.3 inches. It excelled in earliness, exceeding the other varieties by differences which ranged from 1.5 days to 6.1 days. It was inferior to all varieties in strength of straw. With the exception of Marquis, which weighed 1.2 lbs. less, Garnet was outweighed by all varieties by differences ranging from 1 lb. to 2.6 lbs. Many samples contained green, immature, bleached or sprouted kernels which resulted in relatively low grades. Garnet showed 17% more rust infection than Reward but 9% less than Marquis.

Renown was high in yield, but not significantly higher than Apex or Thatcher, and it was decidedly inferior to the latter varieties in commercial grades. Thatcher was practically equal to Apex in yield, but weighed slightly less and was inferior in commercial grades. Apex was slightly later than Renown or Thatcher, but apart from the slight difference in yield its other characteristics were equal or superior to these varieties. A comparison of the varieties susceptible to rust shows Reward to be equal to Marquis in yield, but decidedly superior to Marquis or Garnet in bushel weight and grades. Marquis was low in weight and relatively low in grades. Garnet was not significantly outyielded by either Marquis or Reward, but apart from earliness showed no particular merit.

The severe rust epidemic of last year clearly shows the necessity of the use of a rust-resistant variety in this zone. The results of this test show that none of the rust-resistant varieties have significantly outyielded the other, but although Apex required a somewhat longer maturity period, it shows a decided advantage in commercial grades. Thatcher and Renown each showed superiority to each other in some

characteristics. Of the varieties susceptible to rust infection the excellent weight and commercial grades of Reward gave it a distinct advantage over Marquis and Garnet.

TABLE No. 19—SUMMARIZED RESULTS FOR ZONE 3D

	Marquis	Garnet	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	17.1	15.9	17.1	22.9	22.7	24.4
Height of plant in inches	28.4	24.0	26.1	26.6	27.6	29.3
Days from seeding to ripening	96.1	91.2	92.7	95.1	97.3	95.6
Straw strength	8.2	7.3	7.9	7.5	8.6	8.6
Bushel weight in pounds	61.3	62.5	65.1	63.5	63.8	63.7
Commercial grades in percentage—1 Hd.	....	....	50	13	25	....
1°	25	....	25	25	25	37
2°	25	....	13	25	13	25
3°	37	....	12	37	37	38
5°	13	13	....	....	....	....
1 C.W.	....	37	....	....	....	....
2 C.W.	....	25	....	....	....	....
3 C.W.	....	25	....	....	....	....

Necessary difference—2.0 bushels.

Cereal Variety Zone 3E

Summarized results for Zone 3E are tabulated in Table No 20. This zone consists of an area in the northwest part of the province, reaching from a point east of the third meridian to the Alberta border. Generally throughout this zone moisture conditions were poor. Grasshoppers caused some damage to the tests in the early part of the growing season and heavy injury by these pests occurred prior to harvest. Stem rust was in evidence throughout practically the entire area, being particularly heavy in the eastern portion of the zone. Garnet was grown as the sixth variety in the tests.

Thatcher excelled in yield, yielding significantly more than any of the other varieties. In height Thatcher was exceeded by all varieties by differences ranging from .7 inch to 1.7 inches. It was slightly earlier than Apex and 2.1 days earlier than Marquis, but later than the Renown, Reward and Garnet varieties by differences of .5 day, 2.1 days and 3.5 days respectively. In straw strength Thatcher equalled Marquis, was slightly superior to Renown, and somewhat stronger than the other varieties. Thatcher was exceeded in bushel weight by Reward by a difference of nearly 2 lbs., and was slightly exceeded by Apex and Marquis. It was, however, somewhat heavier than Garnet and Renown. In many samples bleached and green kernels were abundant, and Thatcher ranked fourth in commercial grades. Little difference is shown in the degree of rust infection appearing on the stems of the three rust resistant varieties, but Thatcher showed less infection than Reward, and considerably less than Marquis and Garnet.

Apex was second to Thatcher in yield in this zone. The actual difference between this variety and Renown and Marquis did not equal the necessary difference, but Apex yielded significantly more than Garnet or Reward. It excelled in height, being taller than the other varieties by differences ranging from .4 inch to 1.7 inches. With the exception of Marquis, which required 1.7 days more to reach maturity, Apex was later than all varieties by differences from .4 day to nearly 4 days. In straw strength Apex was slightly inferior to Thatcher, Marquis and Renown, but was slightly superior to Garnet and Reward. It weighed slightly less than Marquis, and 1.5 lbs. less than Reward. It slightly exceeded Thatcher in bushel weight and exceeded Garnet and Renown by approximately 1 lb. Despite the presence of some green and bleached kernels, Apex graded relatively well, practically equalling Reward and exceeding the other varieties in commercial grades. Apex was practically immune to rust infection in this zone.

Renown ranked third in yielding ability. It failed to outyield Marquis by a necessary difference, but yielded significantly more than Garnet or Reward. Renown was slightly taller than Garnet and Thatcher, but was exceeded in height by the other varieties by differences ranging from .4 inch to nearly 1 inch. It was slightly earlier than Thatcher and Apex and 2.6 days earlier than Marquis, but was exceeded in "earliness" by Garnet and Reward by differences of 3 days and 1.6 days respectively. In straw strength Renown was slightly inferior to Marquis and Thatcher, but somewhat superior to the other varieties. It was low in bushel weight, being exceeded by the other varieties by differences ranging from .2 lb. to 2.5 lbs. Practically all samples contained some green, shrunken or immature kernels, and Renown was somewhat inferior to all varieties in commercial grades. Renown was highly resistant to stem rust infection.

Marquis was fourth in yield and yielded significantly more than Garnet or Reward. It was slightly shorter than Reward or Apex, but exceeded the other varieties in height by differences of .4 inch to 1.2 inches. It was later than all varieties by differences ranging from 1.7 days to 5.6 days. It equalled Thatcher and was superior to all other varieties in straw strength. Marquis was exceeded in bushel weight by Reward by a difference of 1.3 lbs., but outweighed the other varieties by differences ranging from .2 lb. to 1.2 lbs. Most samples contained many green and immature kernels, but despite these defects Marquis graded relatively well. The stems of the Marquis variety were infected with rust pustules, the degree of infection being reported approximately 15%.

Garnet ranked fifth in yielding ability in this zone, yielding significantly more than Reward. It somewhat exceeded Thatcher in height, but was shorter tehan the other varieties by differences ranging from .1 inch to 1 inch. In earliness it xcelled all varieties by differences which ranged from 1.4 days to 5.6 days. It was inferior to all varieties in straw strength, and with the exception of Renown, which was .2 lb. lighter, it was outweighed by all varieties by differences ranging from .4 lb. to 2.3 lbs. Practically all samples contained some green or immature kernels, and these defects affected the commercial grades of this variety. Garnet was more heavily infected by stem rust than any of the other varieties, exceeding both Marquis and Reward in the degree of infection by 2% and 9% respectively.

Reward was low in yield. In height it was exceeded by Apex by .4 inch. It was only slightly taller than Marquis, Renown and Garnet, but exceeded Thatcher by more than 1 inch. Reward was exceeded in earliness by Garnet by a difference of 1.4 days, but ripened earlier than the other varieties by differences ranging from 1.6 to 4.2 days. In straw strength it was slightly superior to Garnet, but inferior to all other varieties. It excelled in bushel weight, outweighing the other varieties by differences ranging from 1.3 lbs. to 2.5 lbs. Although some green kernels were in evidence, Reward also excelled in commercial grades. Reward showed somewhat less stem rust infection than Marquis or Garnet, but considerably more than the other varieties. A few loose smutted heads were reported in nearly all tests.

Thatcher was the highest yielder, yielding significantly more than the other varieties. It was, however, exceeded in bushel weight by Reward, and in commercial grades by Reward, Apex, and Marquis. The actual yield difference between Thatcher and Apex exceeded the necessary difference for the zone, but Apex was slightly better in bushel weight and distinctly superior in commercial grades. Apex failed to outyield Renown by a necessary difference, but Renown showed less weight and inferior commercial grades. Marquis was also significantly outyielded only by Thatcher, showed good bushel weight and was exceeded in commercial grades only by Reward and Apex. Garnet exceeded Reward in yield, but was significantly outyielded by the other varieties. Reward was low in yield, but high in bushel weight and excelled in commercial grades. Lack of sufficient moisture seriously affected the tests in the central and eastern portions of the zone. While in the past the area has not been subject to severe rust epidemics, stem rust was in evidence during 1938, being particularly noticeable in the eastern section. Of the rust resistant varieties Thatcher and Apex appear to show the best performance, while, in this area, which as we have already stated has not previously been subject to severe rust epidemics, the general performance of Marquis is worthy of note.

TABLE No. 20—SUMMARIZED RESULTS FOR ZONE 3E

	Marquis	Garnet	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	18.3	16.1	14.2	20.7	19.3	18.7
Height of plant in inches	25.3	24.8	25.4	24.1	25.8	24.9
Days from seeding to ripening	96.4	90.8	92.2	94.3	94.7	93.8
Straw strength	9.2	8.6	8.8	9.2	8.9	9.1
Bushel weight in pounds	63.6	62.6	64.9	63.0	63.4	62.4
Commercial grades in percentage—1 Hd.	12	....	24	8	20	4
1°	12	....	8	20	16	20
2°	8	....	24	16	20	12
3°	44	....	20	28	12	36
4°	12	....	24	24	24	20
5°	12	16	....	4	8	8
Rej. 5	....	4	....	....	....	....
1 C.W.	....	32	....	....	....	....
2 C.W.	....	16	....	....	....	....
3 C.W.	....	32	....	....	....	....

Necessary difference—1.1 bushels.

Cereal Variety Zone 4A

Summarized results for Zone 4A are presented in Table No. 21. This zone represents an area in the northeast part of the province. Moisture conditions were generally satisfactory. Little damage was caused to the tests by pests, but stem rust infection was severe and the susceptible varieties suffered considerably. Garnet was grown as the sixth variety.

Renown excelled in yield, yielding significantly more than any of the other varieties. It also exceeded all varieties in height. Renown matured 5.7 days later than Garnet, and 3.5 days later than Reward, but was earlier than the other varieties by differences ranging from .5 day to 1.3 days. In straw strength it was slightly inferior to Marquis, but considerably superior to Garnet, was equal to Thatcher, and somewhat stronger than the other varieties. It excelled in weight per measured bushel, outweighing Thatcher and Apex by nearly .5 lb. The rust-resistant qualities of Renown are reflected in bushel weight as well as yield, Renown having outweighed Marquis, Garnet and Reward, by 9.7 lbs., 7.3 lbs., and 1.4 lbs. respectively. All samples contained many green kernels which materially affected the commercial grades, Renown being exceeded in grades by both Apex and Thatcher and Reward. It graded considerably better than Marquis and Garnet. Rust infection, which appeared on the stems of this variety, appeared to equal the infection of Apex, and was less than one percent. Renown proved to be highly rust-resistant.

Thatcher was second to Renown in yield and outyielded all other varieties by actual differences which exceeded the necessary difference. In height it exceeded both Garnet and Reward by nearly two inches, but was somewhat shorter than the other varieties. Thatcher was slightly earlier than Apex, but was later than all other varieties by differences ranging from .5 day to 6.7 days. In straw strength Thatcher was slightly inferior to Marquis, equalled Renown, and slightly superior to Reward and Apex. It was considerably superior to Garnet in this characteristic. It ranked second to Renown and excelled all other varieties in bushel weight, exceeding the Marquis and Ceres varieties by 9.4 lbs. and 7.0 lbs. respectively. Despite many samples which contained shrunken, green or bleached kernels, Thatcher graded remarkably well, being exceeded in grades only by Reward, the rust-resistant qualities of Thatcher being reflected in bushel weight and commercial grades as well as yield. While some infection was apparent on the stems of this variety the degree of infection was reported as only 9%, Thatcher being reasonably resistant to rust infection.

Apex ranked third in yielding ability in this zone, and yielded significantly more than Reward, Garnet and Marquis. In height it was somewhat exceeded by Marquis and Renown, but was slightly taller than Thatcher and exceeded Garnet and Reward by 2 inches and 2.2 inches respectively. Apex was later than all other varieties by differences ranging from .3 day to 7 days. In straw strength it was superior to Garnet by a marked difference, but was somewhat inferior to the other varieties. Apex practically equalled Thatcher in bushel weight, weighed slightly less than Renown, but somewhat more than Reward. Its resistance to rust infection is demonstrated in bushel weight as well as yield, having outweighed the Marquis and Garnet varieties by 9.2 lbs. and 6.8 lbs. respectively. Practically all samples of Apex contained some green kernels and black point was also in evidence in a number of samples, but, although these defects somewhat reduced the commercial grades, generally it showed but little inferiority to Reward, Thatcher, was practically equal to Renown, and graded decidedly better than Marquis or Garnet. Apex proved to be practically immune to stem rust infection, equalling Renown in its resistant qualities. The amount of infection appearing on the stems of this variety was reported to be less than 1%.

Reward was fourth in yield in this zone, and yielded significantly more than Marquis or Garnet. It was exceeded in height by all varieties by differences ranging from .2 inch to 3 inches. Reward was 2.2 days later than Garnet, but exceeded the other varieties in earliness by differences ranging from 3.5 days to 4.8 days. In straw strength it was practically equal to Marquis, Thatcher and Renown, somewhat superior to Apex, and decidedly superior to Garnet. Despite the rust epidemic, Reward showed relatively good bushel weight. It was outweighed by Thatcher, Apex and Renown, by 1.1 lbs., .9 lb., and 1.4 lbs. respectively, but weighed 8.3 lbs. more than Marquis, and 5.9 lbs. more than Garnet. The percentage of rust infection appearing on the stems of Reward was reported to be 90%. A number of loose smutted heads were in evidence in nearly all tests.

Garnet ranked fifth in yielding ability, but the actual difference between this variety and Marquis failed to equal the necessary difference. Garnet was slightly taller than Reward, but was exceeded in height by the other varieties by differences ranging from 1.8 inches to 2.8 inches. It exceeded Reward in "earliness" by 2.2 days, and was earlier than the other varieties by differences ranging from 5.7 days to 7 days. In straw strength it was decidedly weaker than the other varieties. The naturally

light weight of the Garnet variety was further affected by the severe rust infection, but in this zone it outweighed Marquis by 2.4 lbs. It was, however, exceeded in weight by the other varieties by differences ranging from 5.9 lbs. to 7.3 lbs. In addition to its light weight a number of samples contained green and immature kernels and the commercial grades of Garnet were relatively low. Garnet was most severely attacked by stem rust, the amount of infection being reported as 95%.

Marquis was low in yield. In height it ranked second to Renown and exceeded the other varieties by differences ranging from .5 inch to 2.7 inches. Marquis was earlier than Thatcher and Apex by a difference of .5 day and .8 day respectively, but was .5 day later than Renown, and exceeded Garnet and Reward in its maturity period by 6.2 days and 4 days respectively. In straw strength Marquis was decidedly superior to Garnet, and slightly superior to the other varieties. The severity of the rust infection is fully reflected in bushel weight as well as yield, Marquis being outweighed by Garnet by 2.4 lbs., and exceeded in weight by the other varieties by differences ranging from 8.3 lbs. to 9.7 lbs. All samples contained shrunken, green, or starchy kernels, and these defects combined with light weight, resulted in Marquis showing lower commercial grades than any of the other varieties. The percentage of rust infection appearing on the stems of the Marquis variety was reported as 91%.

Renown excelled in yield, height and bushel weight. In other characteristics it was also satisfactory. Thatcher, while significantly outyielded by Renown and slightly inferior in bushel weight showed slightly better commercial grades, but this superiority hardly compensated for the difference in yield. Apex was somewhat inferior to the other rust-resistant varieties in nearly all characteristics. Reward was significantly outyielded by the three rust-resistant types, but exceeded Marquis and Garnet by necessary differences. It showed comparatively good weight and excelled in commercial grades. Marquis and Garnet were decidedly low in yield, weight and commercial grades, and apart from the earliness of Garnet, showed no particular merit.

The performance of Renown is outstanding, but Thatcher also shows considerable merit, and in this area, which is subject to severe rust attacks, the results indicate their value for use in the zone. Of the susceptible varieties the relatively good performance of Reward, and the poor performance of Marquis and Garnet, appear to be worthy of consideration.

TABLE No. 21—SUMMARIZED RESULTS FOR ZONE 4A

	Marquis	Garnet	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	17.1	17.9	20.6	35.3	32.1	39.7
Height of plant in inches	36.5	34.0	33.8	35.8	36.0	36.8
Days from seeding to ripening	98.5	92.3	94.5	99.0	99.3	98.0
Straw strength	8.7	6.4	8.5	8.6	8.1	8.6
Bushel weight in pounds	54.5	56.9	62.8	63.9	63.7	64.2
Commercial grades in percentage—1 Hd.	17	....	33	17	....	17
1°	....	....	17	50	83	33
2°	....	....	33	33	17	17
3°	33	....	....	....	....	33
4°	17	....	....	....	....	....
No. 5	....	....	....	....	....	....
6	....	....	17	....	....	....
Feed	33	34	....	....	....	....
1 C.W.	....	33	....	....	....	....
2 C.W.	....	33	....	....	....	....

Necessary difference—2.5 bushels.

Cereal Variety Zone 4B

Summarized results for Zone 4B are shown in Table No. 22. This zone represents Saskatchewan's most northerly grain growing area. Moisture conditions were far from satisfactory. Stem rust was in evidence, but the infection was relatively of a light nature. Grasshoppers caused but little damage in this zone. Garnet was sown as the sixth variety in the tests.

Thatcher excelled in yield, yielding significantly more than the other varieties. It was exceeded in height by Marquis and Apex by 2 inches and .5 inch respectively, but was taller than the other varieties by differences ranging from 1.3 inches to 1.8 inches. In earliness it exceeded Marquis and Apex by 2.7 days and 3 days respectively, but was later than the other varieties by differences which ranged from .8 day to 4.6 days. Thatcher was slightly inferior to Apex in strength of straw, but was decidedly superior to Garnet and somewhat superior to the other varieties. In bushel weight it tied with Marquis and Apex, was outweighed by Reward by 1.3 lbs., but weighed slightly better than Garnet or Renown. An abundance of green and immature kernels

were in evidence in nearly all samples, and although Thatcher graded relatively well it was exceeded in commercial grades by Marquis and Apex. While showing slightly more infection than Apex or Renown, Thatcher appeared to be reasonably resistant to stem rust.

Apex equalled Marquis in yielding, but failed to outyield Renown or Garnet by an actual difference equal to the necessary difference for the zone. Apex, however, yielded significantly more than Reward. In height it was exceeded by Marquis by 1.5 inches, but was taller than the other varieties by .5 inch to 2.3 inches. It was later than all varieties by differences ranging from .3 day to 7.6 days. Apex excelled in straw strength, being decidedly superior to Garnet, and somewhat superior to the other varieties. In bushel weight Apex tied with Thatcher and Marquis. It slightly outweighed Garnet and Renown, but was exceeded in weight by Reward by a difference of 1.3 lbs. Some green or immature kernels were in evidence in all tests, and although it received close competition it excelled in commercial grades. Apex showed somewhat less rust infection than Thatcher and appeared to be highly rust-resistant.

Marquis tied with Apex in yield. It failed to significantly outyield Renown or Garnet, but yielded significantly more than Reward. Marquis excelled in height, exceeding the other varieties by differences ranging from 1.5 inches to 3.8 inches. It slightly exceeded Apex in "earliness", but was later than all other varieties by differences ranging from 2.7 days to 7.3 days. In straw strength it was superior to Garnet and slightly superior to Reward and Renown. It was somewhat inferior to Thatcher and Apex in this characteristic.

Marquis equalled Thatcher and Apex, and slightly exceeded Garnet and Renown in bushel weight. It was, however, outweighed by Reward by 1.3 lbs. Many samples showed numerous green or immature kernels, and although it graded relatively well, it was somewhat inferior in commercial grades to Thatcher and Apex. The amount of rust infection appearing on the stems of the Marquis variety was reported as approximately 40%, somewhat exceeding the infection which appeared on Reward, but approximately 3% less than the infection which appeared on Garnet.

Renown ranked fourth in yield, but failed to significantly outyield Garnet, and the actual difference between the yield of Renown and Reward only equalled the necessary difference for the zone. It was exceeded in height by all other varieties by differences ranging from .3 inch to 3.8 inches. In earliness, Renown exceeded Apex, Marquis and Thatcher by differences of 3.8 days, 3.5 days and .8 day respectively, but was 1.7 days later than Reward and 3.8 days later than Garnet. Renown showed somewhat weaker straw than Thatcher and Apex, was slightly weaker than Marquis and Reward, but slightly superior in this characteristic to Garnet. In bushel weight Renown weighed 1.7 lbs. less than Reward, but was exceeded by the other varieties by only slight differences. Many green or immature kernels were in evidence in all samples, and in commercial grades Renown was exceeded by all other varieties. The stems of Renown were rust-free, and this variety was highly resistant to rust infection.

Garnet was fifth in yield, but the actual difference between this variety and Reward failed to equal the necessary difference for the zone. It was slightly taller than Reward or Renown, but was exceeded in height by the other varieties by differences ranging from 1.3 inches to 3.3 inches. Garnet excelled in earliness, exceeding the other varieties by differences which ranged from 2.1 days to 7.6 days. It was inferior to all varieties in straw strength. Garnet was relatively low in bushel weight, being .2 lb. lighter than Marquis, Thatcher or Apex, slightly heavier than Renown, and weighed 1.5 lbs. less than Reward. Most samples contained green or immature kernels, and in commercial grades Garnet was comparatively low. The amount of rust infection which appeared on the stems of this variety was reported to be approximately 42%, exceeding the percentage of rust infection appearing on Marquis and Reward by 3% and 10% respectively.

Reward was low in yield. With the exception of Renown, which was slightly shorter, it was exceeded in height by all varieties by differences ranging from .2 inch to 3.5 inches. In earliness it ranked second to Garnet and exceeded the other varieties by differences which ranged from 1.7 days to 5.5 days. It was slightly superior in straw strength to Garnet and Renown, but somewhat inferior to the other varieties. It excelled in bushel weight, outweighing the other varieties by differences ranging from 1.3 lbs. to 1.7 lbs. All samples contained green or immature kernels, and in commercial grades Reward was somewhat exceeded by Thatcher, Apex and Marquis. This variety showed somewhat less rust infection than Garnet or Marquis. Both loose and covered smut was reported in a number of tests.

Thatcher excelled in yield and was reasonably satisfactory in other characteristics. Apex tied with Marquis in yield and showed relatively good bushel weight and commercial grades. Its comparatively long maturity period, however, is a dis-

tinct disadvantage in this northern area where "earliness" is such an important feature. Marquis, while yielding comparatively well, was only slightly earlier than Apex, and was slightly inferior to this variety in commercial grades. Renown, although ranking fourth in yield, was significantly outyielded only by Thatcher. It was somewhat earlier but was slightly inferior in bushel weight to the other rust-resistant varieties, and was exceeded in commercial grades by all varieties. Garnet, while fifth in yield, was also significantly outyielded only by Thatcher. It excelled in "earliness", but in a number of tests grades were poor. Reward was low in yield. It was exceeded only by Garnet in "earliness" and excelled in bushel weight. This zone has not in the past suffered from rust epidemics. During 1938, however, rust infection was in evidence, and the usefulness of a rust-resistant variety with other characteristics equal to the susceptible varieties is indicated. Earliness, however, in this northern area is important, and in the choice of a variety this feature must necessarily be considered. Generally, Thatcher made the best showing in this zone. Apart from its inferiority in commercial grades, Renown appears to be reasonably satisfactory. The earliness of Garnet, combined with other characteristics which are reasonably satisfactory cannot altogether be disregarded. The relatively long maturity periods of Marquis and Apex are a handicap. The high bushel weight, combined with relatively good grades of Reward, fails to overcome the advantage in yield enjoyed by the other varieties.

TABLE No. 22—SUMMARIZED RESULTS FOR ZONE 4B

	Marquis	Garnet	Reward	Thatcher	Apex	Renown
Yield in bushels per acre	23.4	21.2	19.8	26.2	23.4	22.4
Height of plant in inches	28.8	25.5	25.3	26.8	27.3	25.0
Days from seeding to ripening	100.0	92.7	94.8	97.3	100.3	96.5
Straw strength	9.3	8.9	9.2	9.6	9.7	9.1
Bushel weight in pounds	63.7	63.5	65.0	63.7	63.7	63.3
Commercial grades in percentage—1 Hd.	33	....	17	33	33	....
1°	17	....	33	....	17	33
2°	....	....	17	17	....	....
3°	17	....	17	33	50	33
4°	....	....	16	17	....	17
No. 5	33	33	....	....	....	17
1 C.W.	....	50	....	....	....	....
2 C.W.	....	17	....	....	....	....

Necessary difference—2.6 bushels.

William Walter Seymour, Four Corners (14-60-18-W3rd), drying the sheaves from his variety test No. 322 before bagging for shipment. This test was located in Saskatchewan's most northerly grain growing area.

GENERAL SUMMARY OF VARIETAL PERFORMANCES

Varieties Listed in Alphabetical Order

Below is shown a comparison of the different varieties when grown under identical conditions. As Reliance, Ceres and Garnet were not sown in all tests, comparisons have only been made with other varieties when grown in similar tests. Marquis, Thatcher, Reward, Apex and Renown were grown in all tests, and comparisons are made on their average performance over the entire project. The provincial yield comparisons, and the comparisons of the yields of those varieties not included in all tests are made on the basis of the average yield of each variety within the areas described.

Apex.—Apex was grown in all tests, and, over the whole project showed an average yield per acre of 21.4 bushels. A comparison between Apex and other varieties which were sown in all tests, shows Apex was outyielded by Thatcher and Renown by differences of 1.3 bushels and 1 bushel respectively. It outyielded both Marquis and Reward by 6.5 bushels and 5.8 bushels respectively, the most marked differences appearing in the area most severely affected by rust, particularly in Zone 3B, where Apex outyielded Marquis by 16.7 bushels. A comparison between Apex and Ceres when grown in similar tests, showed that Apex exceeded Ceres in yielding ability by 5.1 bushels. In the area where Reliance was grown as the sixth variety Apex outyielded Reliance by .3 bushel. This difference, however, is chiefly composed of a variation in yield in Zone 1B, the eastern part of which suffered severely from rust infection. In this zone Apex outyielded Reliance by .9 bushel. In Zone 2C, where rust infection was relatively light, Reliance outyielded Apex by .9 bushel, and in Zone 2D, where rust infection was also not of a severe nature, Reliance outyielded Apex by 1.4 bushels. In the northern regions, where Garnet was grown as the sixth variety Apex outyielded Garnet by a difference of 5.4 bushels. The difference, however, is most marked in the rust infected area in the northeast (Zones 3D and 4A) where Apex outyielded Garnet by 10.6 bushels. In the northwest, where rust infection was not so severe, Apex exceeded Garnet by only 3 bushels. Over the entire project Apex required an average of 94.3 days from sowing to maturity. A comparison between other varieties grown in all tests shows that, with the exception of Marquis which was .4 day later, Apex was later than the other varieties by the following differences: Reward 3.3 days, Thatcher .9 day, Renown .6 day. Compared to other varieties when grown in similar tests, Apex was 1.7 days earlier than Reliance, 1.4 days later than Ceres, and 5.1 days later than Garnet. In height Apex averaged 30.6 inches. It was .4 inch shorter than Marquis, and .1 inch shorter than Renown. It exceeded Thatcher and Reward in height by differences of .8 inch and .4 inch respectively. It also exceeded Reliance and Garnet by 1 inch and 1.6 inches respectively, but was 1 inch shorter than Ceres. A comparison with other varieties grown in all tests showed the straw of Apex to be slightly weaker than Marquis, Thatcher and Renown, but somewhat stronger than Reward. It was also stronger than Ceres and Garnet, but slightly weaker than Reliance. In bushel weight Apex ranked second to Reward and exceeded the other rust-resistant varieties. Over the whole project it showed an average weight of 62.0 lbs. It was outweighed by Reward by a difference of 1.4 lbs., but exceeded Renown and Thatcher by differences of .9 lb. and .4 lb. respectively. In the area where Reliance was grown as the sixth variety in the tests Apex was outweighed by this variety by a difference of .4 lb., but in the rust infected regions of the province the resistant qualities of Apex are reflected in bushel weight as well as yield. A comparison with Ceres, when grown in similar tests, and generally under conditions of severe rust, shows that Apex outweighed this variety by 2.6 lbs. In the western part of the area where Garnet was grown, *i.e.*, Zones 3E and 4B where stem rust infection was not severe, but where moisture conditions were far from satisfactory, Apex exceeded Garnet in bushel weight by a difference of .8 lb., but the most marked difference appeared in the eastern part of the area in which Garnet was sown which was subject to a severe rust attack. In this region Apex outweighed Garnet by a difference of 3.6 lbs. The commercial grades of Apex are shown as follows: 1 Hard, 20%; 1°, 37.8%; 2°, 16.8%; 3°, 15.1%; 4°, 7.2%; No. 5, 1.8%; No. 6, 1.1%; Sample, .2%. Apex showed slightly more rust infection than Renown, but somewhat less than Thatcher. Throughout the whole test Apex proved to be highly rust-resistant.

Ceres.—Ceres was grown as the sixth variety in the tests in Zones 1A, 2A, 2B, 3A, 3B, and 3C, and over this entire area averaged in yield 18.1 bushels per acre. Ceres outyielded Marquis and Reward in all zones, and in the whole region showed an advantage in yield over these two varieties of 5.6 bushels and 2.3 bushels respectively. Ceres was outyielded by the rust-resistant varieties in all zones, and over the entire area the differences in yield between this variety and Thatcher, Apex and Re-

nown, are shown as follows: 6 bushels, 5.1 bushels, and 6.5 bushels respectively. With the exception of Zone 2B, a portion of which was not subject to a severe rust attack, Ceres was sown in the area most severely affected by rust, and its superior ability to Marquis to withstand rust infection is apparent in its yielding ability. It showed, however, marked inferiority to either Thatcher, Apex or Renown in its rust resistance. No comparison can be made between Ceres, Reliance and Garnet as these varieties were not grown in similar tests or under identical conditions. The average maturity period required by Ceres was 94.2 days, and with the exception of Reward, this variety was earlier than other varieties grown in similar tests. Reward was 2.2 days earlier, but Ceres was earlier than the other varieties by the following differences: Apex, 1.4 days; Marquis, 1.3 days; Renown, 1.1 days; and Thatcher, .3 day. With an average height of 33.8 inches Ceres exceeded all other varieties grown under similar conditions by the following differences: Thatcher, 2 inches; Reward, 1.8 inches; Renown, 1.2 inches; Apex, 1 inch; and Marquis, .5 inch. Ceres showed slightly stronger straw than Reward, but was weaker in this characteristic than any of the other varieties. A comparison with other varieties grown in similar tests showed the susceptibility of this variety to rust infection was reflected in bushel weight as well as yield. It was outweighed by Reward, Apex, Thatcher, and Renown, by differences of 3.1 lbs., 2.6 lbs., 2.0 lbs., and 2.0 lbs. respectively. It outweighed Marquis, however, by a difference of 3.7 lbs. The grades of Ceres were also affected by the severe rust epidemic, the commercial grades placed on this variety being shown as follows: 1 hard, 9%; 1°, 20.7%; 2°, 29.1%; 3°, 17%; 4°, 8.5%; No. 5, 12.7%; No. 6, 2.0%; Feed, 1%. Ceres was severely affected by stem rust, the average amount of infection being shown as 46.1%. It showed decidedly less infection than Marquis, the difference being near 11%, but showed slightly more infection than Reward. It was also very susceptible to loose smut and traces of covered smut were in evidence in many tests.

Garnet.—Garnet was grown as the sixth variety in the tests in Zones 3D, 3E, 4A, and 4B. These zones comprise Saskatchewan's most northerly grain growing area. Over the whole territory Garnet averaged in yield 17 bushels per acre, and was outyielded by all varieties with the exception of Reward, having exceeded the latter variety in yielding ability by .6 bushel. In the area most severely affected by rust (Zones 3D and 4A) Garnet was outyielded by all other varieties by the following differences: Renown, 15.3 bushels; Thatcher, 12.3 bushels; Apex, 10.6 bushels; Reward, 2 bushels; and Marquis, .3 bushel. In the north-centre and north-west (Zones 3E and 4B) where rust infection was not so severe, and which included an area which suffered severely from inadequate moisture, Garnet exceeded Reward by 1.8 bushels, but was outyielded by the other varieties by the following differences: Thatcher, 4.6 bushels; Apex, 3 bushels; Renown, 2.3 bushels; and Marquis, 2.2 bushels. Garnet showed an average maturity period of 91.4 days and ripened earlier than any other variety by the following differences: Marquis, 6 days; Apex, 5.1 days; Thatcher, 4.1 days; Renown, 3.7 days; and Reward, 1.6 days. With an average height of 26.2 inches it was also Apex, 3 bushels; Renown, 2.3 bushels; and Marquis, 2.2 bushels. Garnet showed an average maturity period of 91.4 days and ripened earlier than any other variety by following differences: Marquis, 6 days; Apex, 5.1 days; Thatcher, 4.1 days; Renown, 3.7 days; and Reward, 1.6 days. With an average height of 26.2 inches it was also shorter than other varieties by the following differences: Marquis, 1.7 inches; Apex, 1.6 inches; Renown, 1.3 inches; Reward, .6 inch; and Thatcher, .4 inch. Garnet was decidedly weaker in straw than any of the other varieties grown in similar tests. In the area where rust infection was most severe Garnet outweighed the Marquis variety by 1.8 bushels, but in the western regions, where moisture conditions were poor and stem rust infection was only of a light nature, Marquis exceeded Garnet in bushel weight by a difference of .9 bushel. Over the whole area where Garnet was grown as the sixth variety in the tests, little difference is shown in the weight of these two varieties, Marquis showing an advantage in weight of only .1 lb. The severe rust epidemic is clearly reflected in the bushel weight of Garnet when compared to the other varieties grown in Zones 3D and 4A. In this area Garnet was exceeded in weight by the following differences: Reward, 4.0 lbs.; Renown, 3.8 lbs.; Thatcher, 3.6 lbs.; Apex, 3.6 lbs. In the eastern part of the area where Garnet constituted the sixth variety in the tests it slightly exceeded Renown in bushel weight by .1 lb. It was, however, outweighed by the other varieties by the following differences: Reward, 2.2 lbs.; Marquis, .9 lb.; Apex, .8 lb.; and Thatcher, .4 lb. The commercial grades placed on the Garnet variety were as follows: 1 C.W., 38%; 2 C.W., 22.8%; 3 C.W., 14.2%; No. 5, 15.5%; Feed, 8.5%; Rej. No. 5, 1%. Garnet suffered severely from the rust epidemic and showed more infection than any of the other varieties. The average amount of rust infection appearing on the stems of Garnet was reported to be 35.7%. This was slightly more than the infection appearing on Marquis, and nearly 11% more infection than Reward. No comparison can be made between Garnet, Reliance and Ceres as these varieties were not grown in similar tests or under identical conditions.

Marquis.—Marquis was grown in all tests and over the entire project averaged 14.9 bushels per acre. In all zones, with the exception of Zone 4B, where it equalled Apex and exceeded Renown by 1 bushel, Marquis was outyielded by the rust-resistant varieties. The most striking differences, however, appear in the areas most severely stricken by the rust epidemic. In these areas the differences between Marquis and the rust-resistant varieties ranged up to 22.6 bushels per acre. A general comparison between Marquis and other varieties, which were sown in all tests, shows that over the whole project the standard variety was exceeded by the other varieties by the following differences: Reward, .7 bushel; Apex, 6.5 bushels; Renown, 7.5 bushels; and Thatcher, 7.8 bushels. In the area where Ceres constituted the sixth variety in the tests Marquis was exceeded in yield by Ceres by a difference of 5.6 bushels. A comparison with Reliance when grown under identical conditions shows that Marquis was outyielded by 1.5 bushels. In the eastern part of the area in which Garnet was grown as the sixth variety in the tests, and where rust infection was severe, Marquis exceeded Garnet by .3 bushels. In the western portion of the area, where moisture was inadequate, but where rust infection was relatively light, Marquis outyielded Garnet by 2.2 bushels. Over the whole project Marquis required an average of 94.7 days to reach maturity. It was later than other varieties grown in all tests by the following differences: Reward, 3.7 days; Thatcher, 1.3 days; Renown, 1 day; and Apex, .4 day. Compared to other varieties when grown under similar conditions, it was 6 days later than Garnet, and 1.3 days later than Ceres. It was, however, .5 day earlier than Reliance. With the exception of Ceres, which exceeded it in height by .5 inch, Marquis was taller than all other varieties by the following differences: Garnet, 1.7 inches; Thatcher, 1.2 inches; Reliance, 1.1 inches; Apex, .4 inch; and Renown, .3 inch. Both Thatcher and Renown slightly exceeded Marquis in straw strength, but Marquis was superior in this characteristic to all other varieties. Over the entire project Marquis averaged 58.6 lbs. per measured bushel. In the most severely rust infected areas the effect of the rust epidemic is reflected in bushel weight as well as yield. A general comparison with other varieties which were grown in all tests shows that Marquis was outweighed by the following differences: Reward, 4.8 lbs.; Apex, 3.4 lbs.; Thatcher, 3.0 lbs.; and Renown, 2.5 lbs. In the area where Ceres was grown as the sixth variety in the tests, the greater portion of which was subject to a severe rust attack, Ceres outweighed Marquis by a difference of 3.7 lbs. A comparison between Marquis and Reliance, however, when grown in identical tests and generally not subject to severe rust infection shows that the standard variety exceeded Reliance in bushel weight by 1.6 lbs. When compared to Garnet, Marquis shows somewhat better bushel weight in the area not severely affected by the rust epidemic, *i.e.*, the north west. In this area Marquis exceeded Garnet by .9 lb., but in the north east, where rust infection was particularly severe, Garnet exceeded the standard variety in bushel weight by a difference of 1.8 lbs. The effect of rust is reflected also in the commercial grades of the standard variety. Over the entire project the commercial grades placed on Marquis are shown as follows: 1 Hard, 10.1%; 1°, 13.2%; 2°, 13.9%; 3°, 18.5%; 4°, 10.9%; No. 5, 15.6%; No. 6, 4.5%; Feed, 13.1%; Sample, .2%. Throughout the whole province the percentage of rust infection appearing on the Marquis variety was reported as 40%, approximately 10% more than the infection shown on Reward, which was also sown in all tests.

Reliance.—Reliance constituted the sixth variety in the tests in Zones 1B, 2C, and 2D. Averaging 17.8 bushels per acre it outyielded both Marquis and Reward by differences of 1.5 bushels and 2.8 bushels respectively. A comparison between Reliance and the rust-resistant varieties shows that in Zone 1B, the east part of which suffered from rust infection, Reliance was outyielded by Thatcher, Apex, and Renown, by differences of 2.7 bushels, .9 bushel, and 1.7 bushels respectively. In Zone 2C, while some rust was reported, the degree of infection was very light, and in this area Reliance outyielded Apex by .9 bushel. It was, however, exceeded in yield by Thatcher and Renown by differences of 1.4 bushels and .6 bushel respectively. In Zone 2D rust was also reported, but the infection was not as heavy as in the southern or eastern areas. In this zone, Reliance excelled in yielding ability, outyielding the other varieties by the following differences: Reward, 7.2 bushels; Marquis, 2.7 bushels; Renown, 2.6 bushels; Apex, 1.4 bushels; and Thatcher, .5 bushel. Reliance required an average of 92.2 days to reach maturity, and was later than all other varieties grown in similar tests by the following differences: Reward, 4.3 days; Renown, 2.3 days; Thatcher, 2.1 days, Apex, 1.7 days; and Marquis, .5 day. With an average height of 27.9 inches Reliance was also shorter than all varieties grown under identical conditions by the following differences: Reward, 1.4 inches; Renown, 1.4 inches; Marquis, 1.1 inches; Apex, 1 inch; and Thatcher, .7 inch. In straw strength, Reliance was superior to Reward and slightly superior to Apex, but it was weaker than the other varieties. Reliance showed an average weight per measured bushel of 61.0 lbs. A comparison with the other varieties grown in similar tests shows that it was exceeded in weight

by Reward and Marquis by differences of 2.4 lbs. and 1.6 lbs. respectively. It outweighed the other varieties, however, by the following differences: Renown, 2.0 lbs.; Thatcher, .5 lb.; and Apex, .4 lb. The commercial grades placed on the Reliance variety were as follows: 1 Hard, 14%; 1°, 29%; 2°, 23.3%; 3°, 14.3%; 4°, 8%; No. 5, 9%; Feed, 1 7%; Sample, 7% Stem rust infection in the area where Reliance was grown as the sixth variety in the tests was not of a severe nature. The amount of infection was shown as 9.5%, approximately 1% more than Reward, but 4.5% less infection than Marquis.

No comparison can be made between Reliance, Ceres and Garnet, as these varieties were not grown in similar tests or under identical conditions.

Renown.—Renown was grown in all tests and showed an average yield of 22.4 bushels per acre. A general comparison between Renown and other varieties sown in all tests shows that it was exceeded only by Thatcher, the difference between these two varieties being only .3 bushel. Renown exceeded Marquis in all zones with the exception of 4B where Marquis outyielded this variety by a difference of 1 bushel. Over the whole project Marquis and Reward were outyielded by Renown by 7.5 bushels and 6.8 bushels respectively, but the difference in yield is most marked in the areas most affected by rust. In all zones where rust infection was most severe Renown excelled in yielding ability. In the area where Ceres was sown as the sixth variety in the tests Renown outyielded Ceres by a difference of 6.5 bushels. When compared to Reliance, grown in similar tests, Renown exceeded Reliance by an average of .8 bushel. In Zone 2D, however, where rust infection was very light, Reliance outyielded Renown by 2.6 bushels. In the northern area where Garnet was sown as the sixth variety, Renown exceeded Garnet in yield by 6.5 bushels. The most marked difference, however, appeared in the north east (Zones 3D and 4A) where rust infection was severe. In this area Renown outyielded Garnet by a difference of 15.3 bushels per acre. Renown required an average of 93.7 days to reach maturity. Compared to other varieties grown in all tests it was 1 day earlier than Marquis, and .6 day earlier than Apex. It was, however, .3 day later than Thatcher, and 2.7 days later than Reward. A comparison between other varieties showed Renown to be 2.3 days earlier than Reliance, but 1.1 days later than Ceres, and 3.7 days later than Garnet. With an average height of 30.7 inches it was .3 inch shorter than Marquis, but exceeded other varieties grown in all tests by the following differences: Thatcher, .9 inch; Reward, .5 inch; and Apex, .1 inch. It was 1.2 inches shorter than Ceres, but was taller than Reliance and Garnet by 1.4 inches and 1.3 inches respectively. With the exception of Thatcher, Renown was superior to all varieties in straw strength. Over the entire project Renown showed an average bushel weight of 61.1 lbs. It was exceeded by Reward, Apex, and Thatcher, by differences of 2.3 lbs., .9 lb., and .5 lb. respectively. Its rust-resistant qualities, however, are reflected in bushel weight as well as yield, and a general comparison with Marquis, which was also grown in all tests, shows that it exceeded the Marquis variety by a difference of 2.5 lbs. In the area where rust infection was severe, the difference between the bushel weight of Renown and Marquis were outstanding, and ranged up to 10.3 lbs. In the area where Ceres was grown as the sixth variety in the tests, the greater portion of which suffered severely from the rust epidemic, Renown exceeded Ceres in bushel weight by an average difference of 2 lbs. A comparison of Reliance and Renown, when grown in similar tests, in an area not severely affected by rust, showed that Reliance exceeded the rust-resistant variety by 2 lbs. In that portion of the area where Garnet was grown in the tests which was not severely affected by rust, *i.e.*, the north west, Renown was slightly outweighed by the Garnet variety, but in the north east, where rust infection was severe, Renown exceeded Garnet in weight by an average difference of 3.8 lbs. The commercial grades which were placed on the Renown variety are as follows: 1 Hard, 5.5%; 1°, 29.8%; 2°, 23.4%; 3°, 26.8%; 4°, 6.3%; No. 5, 6.3%; No. 6, 1.5%; Feed, .2%; Sample, .2%. Over the entire province only slightly more than 1% of rust infection appeared on the stems of Renown. In a number of areas Renown was rust-free, and generally this variety proved to be highly rust-resistant.

Reward.—Reward was grown in all tests, and over the entire project, showed an average yield of 15.6 bushels per acre. A comparison with other varieties which were grown in all tests shows that, while over the whole project, Reward outyielded Marquis by .7 bushel per acre, in the north west (Zones 2D, 3E and 4B) where stem rust infection was light and moisture conditions far from satisfactory, it was exceeded in yield by Marquis by an average difference of 4.1 bushels. In all areas most severely affected by rust, Reward outyielded the standard variety. In Zone 2C Reward yielded almost the same as Apex, but in all other zones, it was decidedly outyielded by Thatcher, Apex and Renown, the differences in yield being most marked in the areas most severely affected by rust. Taking the project as a whole, Reward was outyielded by Thatcher, Renown and Apex, by 7 1 bushels, 6.8 bushels, and 5.8 bushels respectively.

A comparison between other varieties not grown in all tests shows that Reward was outyielded by the following differences: Ceres 2.3 bushels, and Reliance 2.8 bushels. In the north west Garnet exceeded Reward in yielding ability by a difference of 1 8 bushels, but in the north east (Zones 3D and 4A) Reward exceeded Garnet by 2.0 bushels per acre. Over the entire project Reward averaged 91 days from sowing to maturity, and a comparison with other varieties grown in all tests showed that Reward was earlier than these varieties by the following differences: Marquis, 3.7 days; Apex, 3.3 days; Renown, 2.7 days; and Thatcher, 2.4 days. When compared to other varieties grown in similar tests Reward was shown to be 4.3 days earlier than Reliance, 2.2 days earlier than Ceres, but 1.6 days later than Garnet. In height, Reward averaged 30.2 inches. It exceeded Thatcher by .4 inch, but was shorter than Marquis, Renown and Apex, by differences of .8 inch, .5 inch, and .4 inch respectively. When grown under similar conditions it exceeded Reliance and Garnet by 1.4 inches and .6 inch respectively. It was, however, 1.8 inches shorter than Ceres. In straw strength Reward was somewhat inferior to Marquis, Thatcher, Apex and Renown. It was also somewhat inferior to Reliance. It was slightly weaker than Ceres, but was slightly superior to Garnet. Over the whole project Reward excelled in bushel weight. Averaging 63.4 lbs. per measured bushel it generally exceeded the rust-resistant varieties by the following differences: Apex, 1.4 lbs.; Thatcher, 1.8 lbs.; and Renown, 2.3 lbs. In Zone 3A, however, where rust infection was severe, Apex and Renown outweighed Reward by differences of .6 lb. and .5 lb. respectively. In Zone 4A which also suffered severely from the rust epidemic, Renown, Thatcher, and Apex, outweighed Reward by differences of 1.4 lb., 1.1 lb., and .9 lb. respectively. Generally, however, the susceptibility of Reward to rust infection was more marked in yield than in bushel weight. A comparison with Marquis, which was also grown in all tests, shows that over the entire project Reward outweighed the standard variety by a difference of 4.8 lbs. In the area where Ceres was grown in the tests, and where rust infection was generally severe, Reward exceeded Ceres in weight by a difference of 3.1 lbs. A comparison with Reliance when grown in similar tests shows that Reward enjoyed an advantage in weight over this variety of 2.4 lbs. In the western portion of the area, where Garnet was grown as the sixth variety in the tests, Reward outweighed Garnet by 2.2 lbs., and in the eastern part of the region, where rust was severe, Reward exceeded Garnet by 4 lbs. The commercial grades placed on the Reward variety are shown as follows: 1 Hard, 27.4%; 1°, 31.7%; 2°, 20.4%; 3°, 11.1%; 4°, 7.2%; No. 5, 2%; No. 6, 1.3%; Rej. 3, .7%. Over the entire project the average amount of stem rust appearing on the Reward variety was reported as 30%, approximately 10% less than the infection appearing on Marquis. It also showed approximately 10% less infection than Garnet, approximately 3% less than Ceres and 1% less than Reliance.

Thatcher.—Thatcher was grown in all tests and produced an average yield of 22.7 bushels per acre. While, taking the project as a whole, Thatcher excelled in yield, it was closely followed by Renown, the difference between these two varieties being only .3 bushel. A difference of only 1.3 bushels appeared between the yields of Thatcher and Apex, and in all zones, with the exception of 1B, 2B, 2C, 3E, and 4B, Thatcher was outyielded by one or more of the other varieties. It should be noted that with the exception of a portion of Zone 2B, the zones mentioned are outside the severely rust-infected regions. In all zones most severely affected by rust, Renown outyielded Thatcher, and in the heavily rust-infected zones, where Thatcher was higher in yield than Apex, the differences are not of a marked nature. A comparison with Ceres, when grown in similar tests, shows Thatcher to have outyielded this variety by 6 bushels per acre. In the area where Reliance was grown as the sixth variety, Thatcher, with an average yield of 19.8 bushels, generally outyielded Reliance by 2 bushels per acre, but in Zone 2D, where rust infection was relatively light, Reliance exceeded Thatcher by .5 bushel. In the north where Garnet constituted the sixth variety, Thatcher exceeded Garnet in yielding ability by an average difference of 7.1 bushels. The difference in the yields of these two varieties, however, is most marked in the north east (Zones 3D and 4A). In this area, Thatcher exceeded Garnet in yield by 12.3 bushels. Thatcher required an average of 93.4 days to reach maturity. A comparison with other varieties grown in all tests showed that, with the exception of Reward, which was 2.4 days earlier, it was earlier than the other varieties by the following differences: Marquis, 1.3 days; Apex, .9 day; and Renown, .3 day. A comparison of other varieties, when grown in similar tests, showed that Thatcher was 2.1 days earlier than Reliance, but .3 day later than Ceres, and 4.1 days later than Garnet. Thatcher was shorter than other varieties grown in all tests by the following differences: Marquis, 1.2 inches; Renown, .9 inch; Apex, .8 inch; and Reward, .4 inch. It was also 2 inches shorter than Ceres, but exceeded Reliance and Garnet in height by .7 inch and .4 inch respectively. Thatcher showed the strongest straw, being superior in this characteristic to all other varieties. Over the entire project Thatcher weighed an average of 61.6 lbs. It outweighed Renown by .5 lb., but was exceeded in weight by Apex by

.4 lb. It was also outweighed by Reward by a difference of 1.8 lbs., but a general comparison with Marquis reflects its rust-resistant qualities in bushel weight as well as yield, Thatcher having outweighed the standard variety by 3 lbs. A comparison between the weights of Thatcher and Ceres, when grown in similar tests, and generally under conditions of severe rust, showed that the rust-resistant variety outweighed Ceres by a difference of 2 lbs. When compared to Reliance, grown in identical tests where rust infection, although present, was not of a severe nature, Reliance outweighed Thatcher by .5 lb. In the western portion of the area where Garnet was grown as the sixth variety in the test, and where stem rust infection was generally light, Thatcher outweighed Garnet by only .4 lb., but in the eastern portion of the region where the rust epidemic was severe, Thatcher exceeded Garnet in bushel weight by a difference of 3.6 lbs. The commercial grades placed on the Thatcher variety are shown as follows: 1 Hard, 12.6%; 1°, 28.6%; 2°, 26.2%; 3°, 19.3%; 4°, 8.8%; No. 5, 1.7%; No. 6, 2.6%; Sample, .2%. Thatcher showed slightly more stem rust infection than Apex and more infection than Renown. The percentage of pustules appearing on the stems of this variety, however, was light, and generally Thatcher appeared to be satisfactorily rust-resistant.

EXPLANATION OF COMMERCIAL GRADES

Many factors must be considered in determining the commercial grades of the different wheat varieties. Bushel weight, of course, is an important influence, especially in a year similar to 1938 when rust or some other cause has resulted in a superabundance of shrunken kernels. Other features, however, such as green, bleached or sprouted kernels must necessarily be taken into consideration. It sometimes happens that, while a variety shows good bushel weight other imperfections may seriously affect the commercial grade. In order that the grades which have been placed on the different varieties may be closely followed some of the defects are shown in the individual summarized results. It still remains impossible to show the exact extent of the injury caused by the various defects, but where bushel weight is relatively high and low commercial grades have been placed on the grain the nature of the defect will be recognized. The following symbols have been used to indicate the defects: V g.—Very green; G.—Green; S g.—Some green; S sh.—Some shrunken; Sh.—Shrunken; B sh.—Badly shrunken; S i.—Some immature; I.—Immature; Bl.—Bleached; S bl.—Some bleached; B bl.—Badly bleached; S st.—Some starchy; St.—Starchy; V st.—Very starchy; S sp.—Some sprouted; Sp.—Sprouted; B. sp.—Badly sprouted; P.—Pink; S p.—Some pink; L w.—Light weight; Pd.—Pibald; E d.—Earth dirt; B p.—Black point; S b p.—Some black point; H.—Heated; F.—Frosted.

Table No. 23 shows the individual results obtained by each Co-operator arranged by Wheat Pool Districts. A careful persual of this table will allow a co-operator to study his results with those of his fellow co-operators. Thus, co-operator Robert Victor Fines of Mont Nebo, whose test designation is "A" of Sub-district 7, District 15, in Cereal Variety Zone 3E, finds that Thatcher yielded at the rate of 10 bushels per acre more than Garnet. The necessary difference in yield in his test is 6.88 bushels. Thus, as 10 bushels is more than 6.88 bushels, Thatcher yielded, under the conditions of the test, and irrespective of soil variability, significantly more than Garnet. After examining in this way the results of his own test, Robert Fines turns to the other test in his sub-district, namely Douglas Kell, of Canwood, and finds here also that Thatcher outyielded Garnet significantly. An examination of the results throughout the table will reveal the fact that the varieties do not retain similar relationships in the different areas of the province, in fact, sometimes not even in tests which are relatively close together. Differences of this nature may be due to several causes, the most important being differences in soil, in local weather conditions, or in the date of sowing. A few days' difference in seeding dates in the same field may give an appreciable difference in results. However, each individual test gives an accurate indication of the comparative performance of the varieties under the conditions existing on the farm where the test was made for the year 1938.

TABLE No. 23

Individual Summarized Results of All Tests—In Wheat Pool Districts

WHEAT POOL DISTRICT 1

Cereal variety zone	Dist.	Sub-dist.	Test desig-nation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
BURTON EDWARD TAYLOR, GAINSBOROUGH												
3A	1	1	A	Marquis.....	19	29	97	7	58.5	2	P. Sh.	14.4
..	..	..	..	Ceres.....	21	27	93	9	61.5	2	P. Sh.	14.5
..	..	..	..	Reward.....	22	29	91	8	64.5	2	P. S g.	15.4
..	..	..	..	Thatcher.....	27	28	93	9	64	1 Hd.	....	15.1
..	..	..	..	Apex.....	22	28	96	10	62.5	1	Sbl.	14.9
..	..	..	..	Renown.....	21	28	93	10	63.5	1	S g.	15.8
No significant difference between varieties.												
RUSSEL WARREN DOUGLAS, CARNDUFF												
2A	1	1	B	Marquis.....	4	29	92	7	52	6	B sh.	12.9
..	..	..	..	Ceres.....	9	30	91	8	59	2	Sh.	13.3
..	..	..	..	Reward.....	12	28	90	8	64	1 Hd.	....	15.4
..	..	..	..	Thatcher.....	18	27	92	9	64	1	S g.	15.1
..	..	..	..	Apex.....	17	29	92	9	63.5	1	S g.	15.4
..	..	..	..	Renown.....	18	28	92	9	63	1	S g.	16.5
Necessary difference—1.4 bushels.												
ALEXANDER GERVAIS, ALIDA												
3A	1	2	A	Marquis.....	....	....	91	2	*	†	....	15.6
..	..	..	..	Ceres.....	....	....	90	2	*	†	....	15.2
..	..	..	..	Reward.....	....	....	88	2	*	†	....	16.8
..	..	..	..	Thatcher.....	....	....	90	8	*	†	....	16.0
..	..	..	..	Apex.....	....	....	89	8	*	†	....	15.2
..	..	..	..	Renown.....	....	....	89	8	*	†	....	15.7
(Yields discarded. Considerable grasshopper damage.)												
WILLIAM G. DEYELL, ALAMEDA												
2A	1	3	A	Marquis.....	5	....	....	....	49	Feed	B sh. V g.	15.9
..	..	..	..	Ceres.....	10	....	....	....	57	3	Sh.	15.1
..	..	..	..	Reward.....	13	....	....	....	61	2	S g.	15.5
..	..	..	..	Thatcher.....	14	....	....	....	59.5	2	Bl.	15.1
..	..	..	..	Apex.....	15	....	....	....	60.5	1	Bl.	15.7
..	..	..	..	Renown.....	16	....	....	....	58.5	2	Bl. Sh.	16.0
Necessary difference—4.8 bushels.												
WILLIAM K. LEGGE, WILLMAR												
2A	1	4	A	Marquis.....	....	33	....	10	....	..	....	....
..	..	..	..	Ceres.....	....	32	....	10	....	..	....	....
..	..	..	..	Reward.....	....	33	....	9.7	....	..	....	....
..	..	..	..	Thatcher.....	12	29	97	9.3	63	1	....	14.4
..	..	..	..	Apex.....	17	32	98	8.6	62	1	....	14.7
..	..	..	..	Renown.....	19	31	97	9.3	62	1	....	15.2
(Rejected. Yields incomplete.)												
GEORGE R. HURSH, MACOUN												
2A	1	5	B	Marquis.....	9	....	....	....	50	Feed	B sh. G.	13.7
..	..	..	..	Ceres.....	13	....	....	....	55	4	L w.	14.1
..	..	..	..	Reward.....	7	....	....	....	62	1	S sh.	15.2
..	..	..	..	Thatcher.....	13	....	....	....	60	2	Bl.	15.5
..	..	..	..	Apex.....	14	....	....	....	61	1	S g.	15.0
..	..	..	..	Renown.....	13	....	....	....	59	3	Bl. Sh. G.	15.3
Necessary difference—3-4 bushels.												
ALBERT MILLER MANLEY, MIDALE												
2A	1	6	A	Marquis.....	....	26	....	7	*	†	....	16.2
..	..	..	..	Ceres.....	....	32	....	9	56.5	4	L w.	15.3
..	..	..	..	Reward.....	....	26	....	7	*	†	....	14.7
..	..	..	..	Thatcher.....	....	27	....	10	59	2	Bl.	16.3
..	..	..	..	Apex.....	....	32	....	10	58.5	2	L w.	16.6
..	..	..	..	Renown.....	....	30	....	10	58.5	2	L w.	16.1
(Yields discarded. Considerable grasshopper damage.)												
ARTHUR DORNIAN, OUTRAM												
1A	1	6	B	Marquis.....	12	35	90	10	56	4	B sh.	13.5
..	..	..	..	Ceres.....	17	31	88	10	60	2	Sh.	14.0
..	..	..	..	Reward.....	18	32	90	10	65	1	....	15.2
..	..	..	..	Thatcher.....	26	31	88	10	65	1	....	15.2
..	..	..	..	Apex.....	27	34	89	10	65	2	G.	15.1
..	..	..	..	Renown.....	30	32	90	10	64	2	G. I.	16.2
Necessary difference—3.3 bushels.												
WAYNE E. McALPINE, OUNGRE												
1A	1	7	A	Marquis.....	....	24	....	10	....	..	....	....
..	..	..	..	Ceres.....	....	28	....	10	....	..	....	....
..	..	..	..	Reward.....	....	25	....	10	....	..	....	....
..	..	..	..	Thatcher.....	....	26	....	10	....	..	....	....
..	..	..	..	Apex.....	....	28	....	10	....	..	....	....
..	..	..	..	Renown.....	....	26	....	10	....	..	....	....
(Severe grasshopper damage. No samples received.)												

* Insufficient to weigh. † Insufficient to grade.

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in per centag
				DONALD A. TURNER, McTAGGART								
2A	1	8	A	Marquis	24	....	....	....	59	2	Sh. G.	11.8
..	..	..	..	Ceres	30	....	....	....	61	1	G. I.	12.0
..	..	..	..	Reward	27	....	....	....	66	1 Hd.	....	14.4
..	..	..	..	Thatcher	41	....	....	....	65	1 Hd.	....	13.4
..	..	..	..	Apex	37	....	....	....	64.5	1	S g.	12.9
..	..	..	..	Renown	41	....	....	....	64.5	1	S g.	14.3
Necessary difference—3.5 bushels.												
				NEIL V. FENWICK, GRIFFIN								
2A	1	8	B	Marquis	....	38	79	10	....	..	....	14.6
..	..	..	..	Ceres	....	39	78	10	54	5	L w.	15.0
..	..	..	..	Reward	....	39	78	10	....	..	....	15.3
..	..	..	..	Thatcher	....	39	80	10	57	3	Sh. G.	15.6
..	..	..	..	Apex	....	40	80	10	57	3	G.	15.2
..	..	..	..	Renown	....	37	78	10	56	4	Sh. G.	16.0
(Yields discarded. Considerable grasshopper damage.)												
				DOUGLAS W. BARNET, HUNTOON								
2A	1	8	C	Marquis	....	31	88	10	49	Feed	B sh.	12.3
..	..	..	..	Ceres	....	29	87	10	56.5	4	Sh.	13.1
..	..	..	..	Reward	....	28	86	10	61	3	G.	14.8
..	..	..	..	Thatcher	....	28	88	10	*	†	....	14.0
..	..	..	..	Apex	....	25	88	10	*	†	....	14.9
..	..	..	..	Renown	....	27	87	10	*	†	....	15.4
(Yields rejected. Considerable grasshopper damage.)												
				CLARENCE A. HOOKONSEN, KISBEY								
2A	1	9	A	Marquis	....	34	....	10	....	..	....	....
..	..	..	..	Ceres	....	35	....	10	....	..	....	....
..	..	..	..	Reward	....	34	....	10	....	..	....	....
..	..	..	..	Thatcher	....	34	....	10	61.5	3	G.	14.4
..	..	..	..	Apex	....	34	....	10	61	1	S g.	15.3
..	..	..	..	Renown	....	35	....	10	61	3	G.	15.9
(Yields incomplete.)												
				WALTER H. DONNELLY, STOUGHTON								
2A	1	9	B	Marquis	1	35	87	9.6	*	†	....	12.5
..	..	..	..	Ceres	2	36	87	10	*	†	....	12.6
..	..	..	..	Reward	2	34	87	10	*	†	....	14.1
..	..	..	..	Thatcher	9	35	90	9	60.5	2	G.	14.3
..	..	..	..	Apex	12	37	91	9	60	1	....	15.3
..	..	..	..	Renown	8	35	91	9.7	60.5	1	....	15.4
Necessary difference—3.7 bushels. * Insufficient to weigh. † Insufficient to grade.												
				KENNETH G. GRAY, STOUGHTON								
2A	1	9	C	Marquis	1	32	....	9.3	*	†	....	12.3
..	..	..	..	Ceres	6	36	....	9	56.5	4	L w.	12.8
..	..	..	..	Reward	....	....	34	9	....	..	....	....
..	..	..	..	Thatcher	11	32	....	10	59.5	3	P.	13.6
..	..	..	..	Apex	14	34	....	9.7	60.5	2	G.	14.6
..	..	..	..	Renown	14	32	....	10	61.5	2	G.	15.0
(Yields incomplete.)												
				KENNETH A. CAMERON, CARLYLE								
3A	1	10	A	Marquis	....	24	102	10	59	2	Sh.	16.5
..	..	..	..	Ceres	....	26	103	10	59	2	Sh.	15.3
..	..	..	..	Reward	....	26	95	10	*	†	....	17.1
..	..	..	..	Thatcher	....	26	96	10	60	2	Bl. Sh.	16.0
..	..	..	..	Apex	....	26	97	10	62	1	S g.	16.0
..	..	..	..	Renown	....	25	97	10	59	2	Sh.	17.0
(Yields rejected. Grasshopper and sawfly damage.)												
				CARMAN B. ROBERTSON, ANTLER								
3A	1	10	B	Marquis	2	28	91	10	*	†	....	13.7
..	..	..	..	Ceres	7	28	91	10	61.5	1	....	13.7
..	..	..	..	Reward	4	30	87	10	64	1	....	14.4
..	..	..	..	Thatcher	12	26	89	10	62	1	....	13.4
..	..	..	..	Apex	11	29	91	10	62.5	1	....	14.0
..	..	..	..	Renown	11	25	90	10	61	1	....	14.7
Necessary difference—1.7 bushels.												

* Insufficient to weigh. † Insufficient to grade.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

3A 1 2 B Russel Yates, Storthoaks.
3A 1 2 C Keith W. Rae, Carievale.
3A 1 3 B Raymond Wayne Barber, Auburton.
2A 1 5 A Roger Carlton, Benson.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District and Test Designation.*

WHEAT POOL DISTRICT 2

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
KENNETH E. TORKELSON, BEAUBIER												
1A	2	1	A	Marquis	3	35	88	10	44	Fd.	B sh. L w.	13.0
..	..	..	..	Ceres	13	36	87	10	53.5	5	Sh. L w.	13.7
..	..	..	..	Reward	19	35	84	10	60	2	G.	14.4
..	..	..	..	Thatcher	23	33	92	10	59	3	G.	15.1
..	..	..	..	Apex	28	36	91	8	61	1	....	16.1
..	..	..	..	Renown	31	36	92	8	61.5	2	G.	15.8
Necessary difference—3.0 bushels.												
ELMER R. PETERSEN, LAKE ALMA												
1A	2	1	B	Marquis	1	34	89	9	*	†	....	14.9
..	..	..	..	Ceres	11	34	87	7	58.5	2	L w.	14.6
..	..	..	..	Reward	8	31	86	7	63	1	....	15.1
..	..	..	..	Thatcher	18	32	89	8	63	1	....	15.3
..	..	..	..	Apex	22	33	88	9	63	1	....	16.1
..	..	..	..	Renown	23	33	89	8	63	1	....	16.4
Necessary difference—2.5 bushels.												
FRANK E. FLOER, MINTON												
1A	2	2	B	Marquis	13	....	....	....	52.5	6	B sh. V g.	14.1
..	..	..	..	Ceres	21	....	....	....	58	3	P. G. I.	14.4
..	..	..	..	Reward	10	....	....	....	64	1	S g. I.	15.8
..	..	..	..	Thatcher	20	....	....	....	63	3	G. I.	15.0
..	..	..	..	Apex	31	....	....	....	61.5	3	G. I.	15.2
..	..	..	..	Renown	32	....	....	....	62	3	P. G. I.	15.8
Necessary difference—6.9 bushels.												
JAMES S. TAMES, BUFFALO GAP												
1A	2	3	A	Marquis	6	43	....	10	49	Feed	B sh.	13.2
..	..	..	..	Ceres	16	41	....	10	57	3	Sh.	13.8
..	..	..	..	Reward	12	39	....	10	61	1	Sh.	15.4
..	..	..	..	Thatcher	25	39	....	10	60.5	2	B sh.	14.9
..	..	..	..	Apex	29	41	....	10	62	1	Sh.	15.5
..	..	..	..	Renown	24	40	....	10	62	1	Sh.	15.9
Necessary difference—4.4 bushels.												
WILLIAM A. THOMPSON, CORONACH												
1A	2	3	B	Marquis	6	....	....	....	44	Feed	B sh.	12.2
..	..	..	..	Ceres	15	....	....	....	53.5	5	B sh.	13.3
..	..	..	..	Reward	8	....	....	....	59	2	Sh.	14.6
..	..	..	..	Thatcher	18	....	....	....	60.5	1	S bl.	15.1
..	..	..	..	Apex	18	....	....	....	59	2	Bl.	15.5
..	..	..	..	Renown	23	....	....	....	62	1	Bl.	14.1
Necessary difference—4.7 bushels.												
ROBERT E. GOSSELIN, WILLOWBUNCH												
1A	2	4	A	Marquis	....	....	....	....	....	..	....	....
..	..	..	..	Ceres	....	....	....	....	....	..	....	....
..	..	..	..	Reward	....	....	....	....	....	..	....	....
..	..	..	..	Thatcher	....	40	101	9	56.5	4	B bl.	15.9
..	..	..	..	Apex	....	39	101	8	57	3	Bl.	17.0
..	..	..	..	Renown	....	40	101	9	56	4	B bl.	16.1
(Yields incomplete.)												
RONALD BOUTIN, ST. VICTOR												
1A	2	4	B	Marquis	17	32	93	10	57	3	B sh.	14.8
..	..	..	..	Ceres	26	32	93	9.3	60	1	Sh.	14.7
..	..	..	..	Reward	15	30	87	8.3	61.5	1	Sh.	15.2
..	..	..	..	Thatcher	23	30	93	10	57	3	B sh.	15.6
..	..	..	..	Apex	23	33	93	9.7	61.5	1	Sh.	14.3
..	..	..	..	Renown	24	31	93	10	58.5	2	Sh.	14.4
Necessary difference—5.4 bushels.												
ARTHUR W. DAVEY, LONESOME BUTTE												
1B	2	5	A	Marquis	8	42	....	9	50	Feed	P. B sh.	14.1
..	..	..	..	Reliance	8	44	....	8.7	50	Feed	P. B sh.	13.0
..	..	..	..	Reward	21	44	....	7.7	62.5	1 Hd.	....	14.2
..	..	..	..	Thatcher	29	43	....	10	58	2	Bl. Sh.	14.2
..	..	..	..	Apex	26	42	....	8.7	58	2	Sh.	14.2
..	..	..	..	Renown	25	44	....	9.3	55.5	4	Bl. Sh.	14.8
Necessary difference—3.4 bushels.												
KENNETH H. BARKER, KILLDEER												
1B	2	5	B	Marquis	13	37	99	8.3	49	Feed	P. Sh. I.	15.4
..	..	..	..	Reliance	12	38	100	8.3	50	Feed	P. Sh. I.	14.4
..	..	..	..	Reward	17	39	99	7.7	61	1	Sh.	14.9
..	..	..	..	Thatcher	27	39	99	8.3	58.5	2	Sh.	15.6
..	..	..	..	Apex	23	38	99	7.7	58	2	Sh.	15.5
..	..	..	..	Renown	27	38	98	7.9	57	3	Sh.	15.4
Necessary difference—3.1 bushels.												

* Insufficient to weigh. † Insufficient to grade.

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
ALLISTER J. CHISHOLM, FIR MOUNTAIN												
1B	2	6	A	Marquis	7	36	100	10	52	6	B sh.	17.0
..	..	..	..	Reliance	9	35	99	9	54	5	B sh. Bl.	17.2
..	..	..	..	Reward	11	36	92	9.3	59	2	B sh.	16.4
..	..	..	..	Thatcher	15	34	95	10	55	4	B sh. Bl.	17.3
..	..	..	..	Apex	13	35	97	9	55.5	4	B sh.	17.0
..	..	..	..	Renown	14	36	99	10	55	4	B sh.	16.2
No significant difference between varieties.												
ROBERT H. NICHOLSON, LA FLECHE												
1B	2	6	B	Marquis	17	....	....	9.7	59	2	Bl.	14.2
..	..	..	..	Reliance	12	....	....	8.7	59.5	2	Bl.	13.9
..	..	..	..	Reward	18	....	....	7.3	65	1	Bl.	15.9
..	..	..	..	Thatcher	37	....	....	9.3	61.5	2	Bl.	16.1
..	..	..	..	Apex	30	....	....	8	61.5	1	Bl.	15.1
..	..	..	..	Renown	36	....	....	9.3	61	2	Bl.	15.7
Necessary difference—3.5 bushels.												
RUSSELL M. REISNER, LIMERICK												
1B	2	7	A	Marquis	16	41	101	9	57	3	Sh.	14.8
..	..	..	..	Reliance	17	41	97	10	58	2	Sh.	14.5
..	..	..	..	Reward	22	38	94	9	65	1 Hd.	....	14.5
..	..	..	..	Thatcher	30	38	97	10	60.5	1	Sh.	14.6
..	..	..	..	Apex	28	39	96	10	60.5	1	Sh.	14.9
..	..	..	..	Renown	30	44	98	8	60	1	Sh.	14.8
Necessary difference—3.8 bushels.												
JOHN W. PANA, WOOD MOUNTAIN												
1B	2	7	B	Marquis	10	35	....	....	55	4	P. Sh. G.	18.5
..	..	..	..	Reliance	9	32	....	....	55.5	4	Sh.	18.0
..	..	..	..	Reward	12	37	....	....	58.5	2	Sh.	17.8
..	..	..	..	Thatcher	13	36	....	....	52	6	B sh. Bl.	17.9
..	..	..	..	Apex	11	33	....	....	53	5	B sh.	18.0
..	..	..	..	Renown	13	38	....	....	49	Feed	Bl. P. Sh.	17.4
(Yields incomplete.)												
HENRY J. C. BROWN, READLYN												
1A	2	8	A	Marquis	....	41	88	8	47	Feed	B sh.	13.0
..	..	..	..	Ceres	....	43	83	7	55	4	B sh.	12.9
..	..	..	..	Reward	....	39	79	4	58	2	Sh.	13.2
..	..	..	..	Thatcher	....	39	85	9	60.5	1	Sh.	14.1
..	..	..	..	Apex	....	41	86	9	62	1 Hd.	....	14.4
..	..	..	..	Renown	....	40	86	9	61	1	....	14.1
(Considerable grasshopper damage. Yields rejected).												
HENRY M. PRICE, READLYN												
1A	2	8	B	Marquis	5	38	....	7	48	Feed	B sh.	11.3
..	..	..	..	Ceres	18	40	....	8	58.5	2	Sh.	11.4
..	..	..	..	Reward	13	37	....	6	....	..	....	....
..	..	..	..	Thatcher	26	36	....	10	....	..	....	....
..	..	..	..	Apex	26	37	....	10	63	1 Hd.	....	13.5
..	..	..	..	Renown	25	37	....	10	63	1 Hd.	....	13.3
Necessary difference—4.0 bushels.												
WILLIAM PALIUK, READLYN												
1A	2	8	C	Marquis	7	38	93	10	49	Feed	B sh.	16.7
..	..	..	..	Ceres	18	47	91	10	53	5	B sh. P.	16.2
..	..	..	..	Reward	14	43	91	10	57	3	B sh.	16.6
..	..	..	..	Thatcher	17	43	87	10	51	6	B sh.	17.4
..	..	..	..	Apex	14	42	90	10	51	6	B sh.	17.5
..	..	..	..	Renown	17	44	93	10	51.5	6	B sh.	16.1
No significant difference between varieties.												
ROY GORDON, DAHINDA												
1A	2	9	A	Marquis	8	41	89	9	50	Feed	B sh. V g.	15.0
..	..	..	..	Ceres	21	38	89	9.7	56	4	L w.	15.1
..	..	..	..	Reward	13	33	82	9.7	63	1	S g.	15.7
..	..	..	..	Thatcher	27	37	89	10	58.5	3	Bl. Sh. G.	16.5
..	..	..	..	Apex	24	37	89	9	58	2	Sh. S g.	16.4
..	..	..	..	Renown	21	33	89	10	57.5	3	Sh. G.	15.7
Necessary difference—8.4 bushels.												
DELBERT JOHNSON, BENGOUGH												
1A	2	9	B	Marquis	10	....	....	10	60	1	S g.	11.3
..	..	..	..	Ceres	12	....	....	10	61	1	S sh.	11.2
..	..	..	..	Reward	8	....	....	10	64	1	S g.	12.6
..	..	..	..	Thatcher	17	....	....	10	61	1	S bl.	11.8
..	..	..	..	Apex	18	....	....	10	62	1	S sh.	11.4
..	..	..	..	Renown	16	....	....	10	60	1	S g.	11.7
Necessary difference—3.5 bushels.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
				ORVILLE G. SWEDBURG, TROSSACHS								
1A	2	10	A	Marquis	17	35	99	10	61	1	Sh.	13.2
..	..	..	..	Ceres	23	34	96	8.3	64	1 Hd.	....	13.8
..	..	..	..	Reward	21	31	95	10	66	1 Hd.	....	15.6
..	..	..	..	Thatcher	25	32	94	9	64	1 Hd.	....	14.8
..	..	..	..	Apex	25	33	99	8	64	1 Hd.	....	14.5
..	..	..	..	Renown	29	33	99	9	64	1	G.	15.1
(Yields incomplete).												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

1A 2 2 A Ralph McCutcheon, Ceylon. 1A 2 10 B Kenneth D. Ford, Pangman.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 3

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
				DONALD H. McTAGGART, FERLAND								
1B	3	1	A	Marquis	19	39	94	10	56	4	Bl. Sh.	14.7
..	..	..	..	Reliance	26	37	95	10	58.5	2	Sh.	14.2
..	..	..	..	Reward	21	38	93	9.7	63	1	S g.	15.4
..	..	..	..	Thatcher	23	38	93	9.7	58	2	Bl. Sh.	14.8
..	..	..	..	Apex	20	38	94	9.7	57	3	Sh.	14.9
..	..	..	..	Renown	19	38	93	9.7	55.5	4	P. Sh.	15.1
No significant difference between varieties.												
				CLIFFORD SANRUD, MANKOTA								
1B	3	1	B	Marquis	13	32	92	9.7	56	4	B sh.	13.6
..	..	..	..	Reliance	13	31	94	9.7	58	2	Sh.	13.9
..	..	..	..	Reward	18	33	86	10	63.5	1 Hd.	....	14.0
..	..	..	..	Thatcher	21	31	89	10	60.5	1	Sh.	13.1
..	..	..	..	Apex	20	33	91	10	57.5	3	Sh.	15.3
..	..	..	..	Renown	21	33	93	10	57	3	Sh.	14.0
Necessary difference—4.3 bushels.												
				PERCY H. KNOX, WALLARD								
1B	3	2	A	Marquis	16	20	81	8.3	57.5	3	Sh.	16.2
..	..	..	..	Reliance	18	22	81	9	59.5	2	Sh. Bl.	14.9
..	..	..	..	Reward	10	24	79	6	61	3	G. I.	15.9
..	..	..	..	Thatcher	20	23	80	8.3	57.5	3	Sh.	15.5
..	..	..	..	Apex	17	23	81	9	58.5	2	Sh.	15.4
..	..	..	..	Renown	17	25	81	8.3	57.5	3	Sh. I.	14.5
No significant difference between varieties.												
				PHILIPPE LAPRISE, VAL MARIE								
1B	3	2	B	Marquis	21	34	96	10	60	1	S sh.	13.7
..	..	..	..	Reliance	18	34	96	10	63	1 Hd.	....	11.3
..	..	..	..	Reward	15	30	96	10	63	1	S p. Sh.	14.9
..	..	..	..	Thatcher	29	33	96	10	62.5	1 Hd.	....	13.1
..	..	..	..	Apex	23	33	96	10	60	1	S sh.	13.4
..	..	..	..	Renown	25	33	96	10	60.5	2	P. Sh.	13.8
No significant difference between varieties.												
				DONALD J. KEEN, TREELON								
1B	3	3	A	Marquis	8	28	86	8.7	48	Feed	B sh.	17.2
..	..	..	..	Reliance	9	24	86	7	49	Feed	B sh.	17.0
..	..	..	..	Reward	11	30	84	9.3	55.5	4	B sh.	17.1
..	..	..	..	Thatcher	11	28	84	8.7	51	6	B sh.	18.1
..	..	..	..	Apex	9	29	85	9.3	49	Feed	B sh.	17.6
..	..	..	..	Renown	11	30	84	9	47.5	Feed	B sh.	16.5
Necessary difference—1.2 bushels.												
				MISS ELIZABETH A. BERTRAM, CLIMAX								
1B	3	3	B	Marquis	35	38	94	8.7	59.5	2	Sh.	14.5
..	..	..	..	Reliance	35	39	94	8.3	60	2	Sh. I.	14.4
..	..	..	..	Reward	34	38	96	7	65	1 Hd.	....	15.6
..	..	..	..	Thatcher	45	36	94	5	60.5	1	Sh.	15.1
..	..	..	..	Apex	38	36	96	7.7	61.5	1	Sh.	14.7
..	..	..	..	Renown	40	37	96	7 7	60	2	Sh. I.	15.2
Necessary difference—3.4 bushels.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
				WALTER W. HYAM, CLAYDON								
1B	3	4	A	Marquis	17	....	....	....	57	3	L w.	15.6
..	..	..	..	Reliance	17	....	....	....	58.5	2	Sh.	14.7
..	..	..	..	Reward	10	....	....	....	60	1	Sh.	15.9
..	..	..	..	Thatcher	18	....	....	....	57	3	Sh.	15.8
..	..	..	..	Apex	11	....	....	....	56	4	Sh.	15.9
..	..	..	..	Renown	12	....	....	....	59.5	5	B sh. G. I.	15.7
Necessary difference—2.3 bushels.												
				ALBERT F. VASSEUR, CLAYDON								
1B	3	4	B	Marquis	....	32	80	8.2	....	..	....	....
..	..	..	..	Reliance	....	30	81	9.7	....	..	....	....
..	..	..	..	Reward	....	35	74	7.5	....	..	....	....
..	..	..	..	Thatcher	....	33	78	9.3	....	..	....	....
..	..	..	..	Apex	....	31	77	8.3	....	..	....	....
..	..	..	..	Renown	....	36	77	8.5	....	..	....	....
(No yields received).												
				JOHN O. MORRISON, ROBSART								
1B	3	5	A	Marquis	13	....	....	....	57	3	Sh. L w.	14.8
..	..	..	..	Reliance	19	....	....	....	58.5	2	Sh.	14.1
..	..	..	..	Reward	17	....	....	....	63.5	1 Hd.	....	14.1
..	..	..	..	Thatcher	19	....	....	....	57	3	Sh. L w.	14.2
..	..	..	..	Apex	17	....	....	....	60	1	Sh.	12.9
..	..	..	..	Renown	16	....	....	....	56	4	B sh.	13.7
No significant difference between varieties.												
				THOMAS B. HOWELL, ROBSART								
1B	3	5	B	Marquis	14	....	....	....	57	3	B sh.	17.7
..	..	..	..	Reliance	14	....	....	....	58	2	Sh.	17.7
..	..	..	..	Reward	13	....	....	....	57.5	3	Sh.	17.7
..	..	..	..	Thatcher	15	....	....	....	53	5	Bl. B sh.	17.8
..	..	..	..	Apex	15	....	....	....	56	4	B sh.	17.4
..	..	..	..	Renown	15	....	....	....	52	6	Bl. B sh.	17.1
No significant difference between varieties.												
				DONALD A. MEINERT, INSTOW								
2C	3	8	A	Marquis	10	27	90	10	57	3	Sh.	19.0
..	..	..	..	Reliance	10	26	91	10	57.5	3	Sh.	19.0
..	..	..	..	Reward	12	33	86	9.7	60	1	S sh.	18.0
..	..	..	..	Thatcher	11	29	87	10	52	6	B sh.	19.8
..	..	..	..	Apex	10	29	89	10	55	4	Sh.	18.7
..	..	..	..	Renown	12	31	80	9.8	53	5	Sh. Bl.	18.3
No significant difference between varieties.												
				CLARENCE G. NELSON, INSTOW								
2C	3	8	B	Marquis	12	21	84	9.7	58	2	Sh.	17.6
..	..	..	..	Reliance	15	23	83	10	62	1	Sh.	15.5
..	..	..	..	Reward	10	24	84	8	62.5	1	Sh.	16.7
..	..	..	..	Thatcher	16	24	85	8.7	58.5	2	Sh. S bl.	16.9
..	..	..	..	Apex	11	24	85	9.7	58.5	2	Sh.	17.2
..	..	..	..	Renown	14	24	83	9	58.5	2	Sh.	15.5
No significant difference between varieties.												
				ALBERT J. THOMPSON, ADMIRAL								
1B	3	9	A	Marquis	8	21	85	10	56	4	B sh.	19.1
..	..	..	..	Reliance	8	20	87	10	58	2	Sh.	18.4
..	..	..	..	Reward	12	26	82	9	59	2	Sh.	18.6
..	..	..	..	Thatcher	11	23	83	10	53	5	B sh.	19.3
..	..	..	..	Apex	9	27	86	9.7	55.5	4	B sh.	18.5
..	..	..	..	Renown	13	26	84	9.7	52	6	B sh.	17.0
No significant difference between varieties.												
				KEITH IVAN SELANDERS, BEAVER VALLEY								
1B	3	9	B	Marquis	30	....	....	10	60.5	4	G. I.	15.1
..	..	..	..	Reliance	35	....	82	10	60	5	Sh. V g. I.	16.0
..	..	..	..	Reward	23	....	77	10	64	4	V g. I.	16.7
..	..	..	..	Thatcher	26	....	82	10	60.5	4	Sh. V g. I.	15.7
..	..	..	..	Apex	36	....	82	10	59.5	5	Sh. V g. I.	16.2
..	..	..	..	Renown	34	....	82	10	60.5	4	Sh. V g. I.	15.4
No significant difference between varieties.												
				ELMER L. DOUVILLE, PONTEIX								
1B	3	10	B	Marquis	3	18	....	....	58	2	Bl. I.	19.0
..	..	..	..	Reliance	7	19	....	....	60	2	Bl. I.	17.8
..	..	..	..	Reward	6	24	....	....	57	3	Bl. Sh.	19.8
..	..	..	..	Thatcher	5	18	....	....	53	5	Bl. Sh.	19.7
..	..	..	..	Apex	3	18	....	....	56	4	Sh. L w.	19.4
..	..	..	..	Renown	6	20	....	....	56	4	Sh. G.	18.3
No significant difference between varieties.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

1B 3 7 A George Keturakis, Shaunavon.
1B 3 7 B Wilbert H. Lewis, Eastend.
1B 3 10 A Kelso W. Walls, Aneroid.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 4

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
ROBERT T. HECKER, PIAPOT												
1B	4	1	B	Marquis	18	28	84	10	63	1 Hd.	....	15.8
..	..	..	..	Reliance	17	24	85	9	62	1 Hd.	....	15.6
..	..	..	..	Reward	17	27	84	10	65	1 Hd.	....	17.0
..	..	..	..	Thatcher	16	25	83	10	61	1	Sh.	16.7
..	..	..	..	Apex	17	28	83	10	61.5	1	Sh.	16.3
..	..	..	..	Renown	16	28	83	10	60	1	Sh.	15.7
No significant difference between varieties.												
EDWARD WHITE, MAPLE CREEK												
1B	4	2	A	Marquis	11	24	78	10	57	3	Sh.	18.9
..	..	..	..	Reliance	12	24	78	10	59	2	Sh.	17.8
..	..	..	..	Reward	14	32	75	10	61	1	S sh.	17.9
..	..	..	..	Thatcher	12	25	77	10	55	4	B sh.	18.8
..	..	..	..	Apex	12	25	75	10	56	4	B sh.	18.3
..	..	..	..	Renown	14	28	78	10	54	5	B sh. G.	17.1
No significant difference between varieties.												
MIKE HAWRYLAK, MAPLE CREEK												
1B	4	2	B	Marquis	20	29	97	9.3	63	1 Hd.	....	15.1
..	..	..	..	Reliance	21	29	98	9.3	65.5	1 Hd.	....	15.0
..	..	..	..	Reward	16	27	95	7.6	65	1 Hd.	....	17.1
..	..	..	..	Thatcher	19	28	98	9.6	64	1 Hd.	....	16.2
..	..	..	..	Apex	20	30	96	10	63.5	1 Hd.	....	15.2
....	..	..	..	Renown	22	31	97	9.3	62.5	1	Sh. Bl.	15.0
Necessary difference—2.2 bushels.												
FLOY R. TUTTLE, BEVERLEY												
2C	4	3	A	Marquis	30	30	....	7.7	63	1 Hd.	....	14.9
..	..	..	..	Reliance	37	27	....	6.7	62.5	1 Hd.	....	14.9
..	..	..	..	Reward	30	30	....	6.3	63.5	1 Hd.	....	16.5
..	..	..	..	Thatcher	34	32	....	6	59	3	B bl. Sh.	16.1
..	..	..	..	Apex	32	26	....	5	61	1	....	15.4
..	..	..	..	Renown	29	27	....	6.7	58	2	Bl. Sh.	15.1
No significant difference between varieties.												
OWEN R. MALCHOW, CANTUAR												
1B	4	3	B	Marquis	18	26	98	10	59	2	Sh.	17.7
..	..	..	..	Reliance	24	27	98	10	61.5	1	Sh.	16.7
..	..	..	..	Reward	17	27	81	9	63	1	Sh.	16.9
..	..	..	..	Thatcher	23	28	96	10	57.5	3	Sh. L w.	17.4
..	..	..	..	Apex	24	29	96	10	60	1	Sh.	16.4
..	..	..	..	Renown	18	26	91	10	57.5	3	P. Sh.	16.7
Necessary difference—2.9 bushels.												
WILLIAM M. RUDOLPH, GULL LAKE												
2C	4	4	A	Marquis	17	29	92	9	59	2	Bl. Sh.	17.4
..	..	..	..	Reliance	18	29	99	10	60.5	1	Sh.	17.5
..	..	..	..	Reward	20	30	81	9	63	1 Hd.	....	16.6
..	..	..	..	Thatcher	20	30	90	10	55.5	4	B bl. Sh.	18.0
..	..	..	..	Apex	21	31	97	8.7	60	1	Sh.	16.6
..	..	..	..	Renown	21	30	92	9	57.5	3	Bl. Sh.	16.3
No significant difference between varieties.												
HOWARD K. GUMMESLON, CABRI												
1B	4	5	A	Marquis	11	....	....	10	60.5	1	Bl.	14.3
..	..	..	..	Reliance	13	....	....	10	62	1	Bl.	14.4
..	..	..	..	Reward	11	....	....	10	63	1	Bl.	15.8
..	..	..	..	Thatcher	11	....	....	10	60	2	Bl.	14.8
..	..	..	..	Apex	12	....	....	10	59	2	Bl.	14.5
..	..	..	..	Renown	9	....	....	10	53	2	Bl.	15.2
No significant difference between varieties.												
CHARLES D. AHLBERG, GOLDEN PRAIRIE												
1B	4	6	A	Marquis	16	28	95	9	62.5	1 Hd.	....	13.1
..	..	..	..	Reliance	13	25	93	8	62	1	Sh.	16.1
..	..	..	..	Reward	17	25	93	8.3	65	1 Hd.	....	15.0
..	..	..	..	Thatcher	16	22	93	9	60.5	1	Sh.	15.9
..	..	..	..	Apex	18	26	93	7.6	62.5	1 Hd.	....	13.2
..	..	..	..	Renown	19	28	94	9	61	1	Sh.	14.4
No significant difference between varieties.												
ALBERT H. P. PREBOY, FOX VALLEY												
1B	4	7	A	Marquis	11	26	70	9.3	54	5	Sh. G. I.	19.5
..	..	..	..	Reliance	21	32	73	10	59.5	5	P. G. I.	17.2
..	..	..	..	Reward	14	29	64	8	61	1	Sh.	18.5
..	..	..	..	Thatcher	14	29	68	9	59	5	P. Sh. G. I.	19.1
..	..	..	..	Apex	20	33	66	7.7	54	5	Bl. Sh.	16.7
..	..	..	..	Renown	13	30	64	9	51	6	P. Sh.	18.7
No significant difference between varieties.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
ANTON HILSENDEGER, RICHMOUND												
1B	4	7	B	Marquis	16	39	86	10	57.5	3	Sh.	18.0
..	..	..	..	Reliance	21	38	87	10	59	2	Sh.	17.8
..	..	..	..	Reward	20	38	83	10	65	1 Hd.	....	17.8
..	..	..	..	Thatcher	19	38	87	10	60	1	Sh.	18.4
..	..	..	..	Apex	23	33	87	10	61	1	Sh.	17.3
..	..	..	..	Renown	23	38	87	10	57	3	Sh.	17.5
No significant difference between varieties.												
VICTOR J. EBEL, LEADER												
1B	4	8	A	Marquis	7	....	....	....	59	5	V g. I.	18.1
..	..	..	..	Reliance	8	....	....	....	59	3	G. I.	17.3
..	..	..	..	Reward	8	....	....	....	60	2	G. I.	18.3
..	..	..	..	Thatcher	9	....	....	....	55	4	Bl. Sh.	18.2
..	..	..	..	Apex	10	....	....	....	58	4	V g. I.	17.8
..	..	..	..	Renown	7	....	....	....	55	5	V g. I.	17.5
No significant difference between varieties.												
HAROLD YACKEL, ESTUARY												
1B	4	8	B	Marquis	4	....	....	10	55	4	Bl. Sh.	14.7
..	..	..	..	Reliance	4	....	....	10	57	3	Bl. Sh.	14.7
..	..	..	..	Reward	4	....	....	10	59.5	2	Bl. Sh.	14.5
..	..	..	..	Thatcher	6	....	....	10	54	4	Bl. Sh.	15.0
..	..	..	..	Apex	4	....	....	10	56	4	Bl. Sh.	15.2
..	..	..	..	Renown	6	....	....	10	54	5	Bl. Sh.	15.4
No significant difference between varieties.												
MISS MARGARET C. STENHOUSE, PORTREEVE												
1B	4	9	A	Marquis	13	....	....	....	59.5	2	Sh. Bl.	17.2
..	..	..	..	Reliance	13	....	....	....	62.5	1 Hd.	....	16.3
..	..	..	..	Reward	12	....	....	....	62.5	1 Hd.	....	15.2
..	..	..	..	Thatcher	14	....	....	....	58	2	Bl. Sh.	16.8
..	..	..	..	Apex	9	....	....	....	59	2	B sh.	16.8
..	..	..	..	Renown	13	....	....	....	56	4	Sh. L w.	17.1
No significant difference between varieties.												
WILLIAM E. ROWBOTHAM, LEMSFORD												
1B	4	9	B	Marquis	....	30	....	9.7	60	1	....	14.8
..	..	..	..	Reliance	....	22	....	9.3	61	1	....	15.8
..	..	..	..	Reward	....	27	....	9.7	63	1 Hd.	....	16.3
..	..	..	..	Thatcher	....	28	....	10	57	3	Sh.	17.1
..	..	..	..	Apex	....	25	....	10	59	2	Sh.	16.4
..	..	..	..	Renown	....	28	....	9.7	57	3	Sh.	15.4
(Severe hail damage.)												
ARNOLD O. SANNES, HAZLET												
1B	4	10	A	Marquis	13	19	79	10	61.5	1	Sh.	16.3
..	..	..	..	Reliance	10	16	81	10	60	1	Sh.	18.3
..	..	..	..	Reward	14	21	79	10	63.5	1 Hd.	....	16.8
..	..	..	..	Thatcher	15	19	81	10	60	1	Sh.	16.9
..	..	..	..	Apex	16	20	81	9.7	62.5	1 Hd.	....	15.9
..	..	..	..	Renown	20	20	81	10	60	1	Sh.	16.0
Necessary difference—3.9 bushels.												
ROBERT H. COLEMAN, ABBEY												
1B	4	10	B	Marquis	20	27	....	8.7	59.5	2	Sh. Bl.	16.3
..	..	..	..	Reliance	22	27	....	8	60	1	Sh.	15.7
..	..	..	..	Reward	15	25	....	8.3	64.5	2	S g.	16.3
..	..	..	..	Thatcher	22	24	....	9	58.5	2	Sh. S bl.	16.1
..	..	..	..	Apex	21	26	....	8.7	58	2	Sh. S bl.	16.8
..	..	..	..	Renown	21	26	....	9	58	3	P. Sh. I.	16.4
No significant difference between varieties.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

2C 4 1 A Harvey T. Mellor, Garden Head.
2C 4 1 C George Eccleston, Edgell.
1B 4 4 B John J. Rebman, Verlo.
1B 4 5 B Walter G. Bowditch, Success.
1B 4 6 B Harold J. Hanson, Maple Creek.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 5

Cereal variety one	Dist.	Sub-dist.	Test design-ation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
RICHARD A. JOLLY, MOSSBANK												
1A	5	1	A	Marquis.....	10	....	....	....	53	5	B sh.	12.6
..	..	..	..	Ceres.....	19	....	....	....	59	2	Sh.	13.6
..	..	..	..	Reward.....	17	....	....	....	65	1 Hd.	....	14.4
..	..	..	..	Thatcher.....	30	....	....	....	63	1	S g.	13.8
..	..	..	..	Apex.....	26	....	....	....	62.5	1 Hd.	....	13.5
..	..	..	..	Renown.....	31	....	....	....	63	2	P. Sh. G. I.	14.6
Necessary difference—5.9 bushels.												
ERIC LARS TOLLEFSON, ETTINGTON												
1B	5	1	B	Marquis.....	20	34	89	6.1	59	2	Sh.	15.3
..	..	..	..	Reliance.....	23	34	91	7.7	60	1	Sh.	15.6
..	..	..	..	Reward.....	20	34	85	5.1	66	1 Hd.	....	16.2
..	..	..	..	Thatcher.....	27	33	87	7.5	62.5	1	S g.	16.2
..	..	..	..	Apex.....	21	34	89	5.5	61	1	Sh.	15.4
..	..	..	..	Renown.....	23	35	89	7.7	60	2	Sh. G. I.	15.5
Necessary difference—2.6 bushels.												
HUGH LAZENBY, ST. BOSWELLS												
1B	5	2	A	Marquis.....	11	31	77	10	60	1	....	14.2
..	..	..	..	Reliance.....	9	28	78	7.3	61	1	....	13.8
..	..	..	..	Reward.....	7	29	78	10	63.5	1 Hd.	....	15.6
..	..	..	..	Thatcher.....	13	27	76	10	62	1	....	14.2
..	..	..	..	Apex.....	10	28	79	10	61	1	....	14.1
..	..	..	..	Renown.....	9	29	79	10	59	2	Sh.	14.7
No significant difference between varieties.												
LEO NELSON PELLETIER, GRAVELBOURG												
1B	5	2	B	Marquis.....	21	37	....	7	62	1	S g.	15.6
..	..	..	..	Reliance.....	19	34	....	7	61	2	P. Sh.	16.5
..	..	..	..	Reward.....	15	36	....	8	65	1	S g. I.	18.0
..	..	..	..	Thatcher.....	21	32	....	8	63	1	S g. I.	16.6
..	..	..	..	Apex.....	18	35	....	6.7	62.5	1	S g. I.	16.5
..	..	..	..	Renown.....	20	36	....	8.3	61	2	G I.	16.7
No significant difference between varieties.												
GEO. A. BANNERMAN, NEVILLE												
2C	5	3	A	Marquis.....	....	....	104	8.7	62	1 Hd.	....	11.2
..	..	..	..	Reliance.....	....	....	104	9	64	1 Hd.	....	10.1
..	..	..	..	Reward.....	....	....	101	9	66	1 Hd.	....	11.1
..	..	..	..	Thatcher.....	....	....	103	9	62.5	1	Bl.	10.3
..	..	..	..	Apex.....	....	....	104	8.7	62	1 Hd.	....	10.3
..	..	..	..	Renown.....	....	....	103	8.3	62	1	Bl. Sh.	10.3
(Yields incomplete).												
NEIL R. MARJERISON, NEVILLE												
2C	5	3	B	Marquis.....	26	33	96	10	61	1	Sh.	13.0
..	..	..	..	Reliance.....	22	32	96	10	60.5	1	Sh.	14.2
..	..	..	..	Reward.....	25	34	89	9	64	1 Hd.	....	13.5
..	..	..	..	Thatcher.....	28	32	91	10	58.5	2	Bl. Sh.	14.5
..	..	..	..	Apex.....	24	33	90	9.3	61	1	Sh.	13.4
..	..	..	..	Renown.....	29	33	91	9.3	58.5	2	Bl. Sh.	13.6
Necessary difference—2.8 bushels.												
EUSTACE H. DUNN, BURNHAM												
1B	5	4	A	Marquis.....	3	21	85	10	*	†	....	16.0
..	..	..	..	Reliance.....	5	19	81	10	62	1	Sh.	16.2
..	..	..	..	Reward.....	5	24	76	10	61.5	1	S g.	16.1
..	..	..	..	Thatcher.....	3	23	82	10	*	†	....	16.6
..	..	..	..	Apex.....	5	23	83	10	60.5	1	Sh.	15.8
..	..	..	..	Renown.....	5	24	81	10	57	3	Sh. S i.	16.0
No significant difference between varieties.												
ELFORD E. BELL, WIWA HILL												
1B	5	5	B	Marquis.....	....	27	....	10	*	†	....	15.9
..	..	..	..	Reliance.....	....	25	....	10	*	†	....	14.7
..	..	..	..	Reward.....	....	27	....	10	*	†	....	15.9
..	..	..	..	Thatcher.....	....	28	....	10	59	2	Sh.	15.1
..	..	..	..	Apex.....	....	30	....	10	62	1 Hd.	....	15.1
..	..	..	..	Renown.....	....	28	....	10	59	2	Sh.	15.9
(Severe hail damage. Yields discarded).												
THOMAS LEONARD, PARKBEG												
1B	5	7	B	Marquis.....	8	30	81	10	57	3	Sh. L w.	19.0
..	..	..	..	Reliance.....	13	33	80	9.3	58	2	Bl. Sh. L w.	18.1
..	..	..	..	Reward.....	11	37	80	6	60	2	Sh. G. I.	17.9
..	..	..	..	Thatcher.....	11	36	79	9.7	50.5	6	B bl. Sh.	19.8
..	..	..	..	Apex.....	9	32	80	7	55	4	B bl. Sh.	19.8
..	..	..	..	Renown.....	10	36	81	9	53	5	B bl. Sh.	17.7
No significant difference between varieties.												

* Insufficient to weigh. † Insufficient to grade.

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
				JAMES DRAKE, DARMODY								
1B	5	8	A	Marquis	....	26	....	8	*	†	....	17.3
..	..	..	..	Reliance	....	26	....	8	55	5	B sh. G.	18.4
..	..	..	..	Reward	....	28	....	5	....	..	....	....
..	..	..	..	Thatcher	....	26	....	8	*	†	....	18.6
..	..	..	..	Apex	....	26	....	8	*	†	....	18.6
..	..	..	..	Renown	....	26	....	7.7	*	†	....	17.3
(Severe hail damage. Yields incomplete).												
				DARL E. HICKS, MARQUIS								
2A	5	8	B	Marquis	11	26	....	9.7	59.5	6	V g.	16.1
..	..	..	..	Ceres	15	28	78	8.7	61	5	V g.	15.2
..	..	..	..	Reward	9	30	78	7.7	64	2	G.	16.1
..	..	..	..	Thatcher	12	28	79	10	58	6	V g.	16.2
..	..	..	..	Apex	13	26	....	10	60	6	V g.	15.8
..	..	..	..	Renown	11	26	78	9.3	57	6	P. G.	16.0
Necessary difference—1.6 bushels.												
				ALBERT SMITH, DROXFORD								
1B	5	9	A	Marquis	2	20	....	10	*	†	....	18.0
..	..	..	..	Reliance	2	17	....	10	*	†	....	18.0
..	..	..	..	Reward	1	22	68	10	*	†	....	18.6
..	..	..	..	Thatcher	4	21	72	10	54	5	B sh. L w.	19.6
..	..	..	..	Apex	5	18	72	10	56	4	Sh. L w.	19.1
..	..	..	..	Renown	5	20	72	10	53	5	Sh. L w.	18.7
Necessary difference—1.2 bushels. (This test was cut prematurely due to heavy grasshopper infestation).												
				HORACE DUGALD BEACH, ERNFOLD								
1B	5	10	A	Marquis	8	26	88	9.2	60.5	1	S g.	16.4
..	..	..	..	Reliance	7	23	90	10	61.5	1	Sh.	16.8
..	..	..	..	Reward	7	26	84	9.7	62	1	S g.	16.8
..	..	..	..	Thatcher	7	26	86	10	59	2	Sh.	17.4
..	..	..	..	Apex	9	27	89	8	60	1	Sh.	16.4
..	..	..	..	Renown	6	26	85	9.2	57	3	Sh. S bl.	16.9
No significant difference between varieties.												
				ARTHUR POTTS, GLEN KERR								
1B	5	10	B	Marquis	9	23	101	10	63	1 Hd.	....	13.2
..	..	..	..	Reliance	10	24	102	10	64	1 Hd.	....	13.0
..	..	..	..	Reward	8	27	95	10	64	1 Hd.	....	15.8
..	..	..	..	Thatcher	10	25	99	10	62.5	1	Bl.	14.6
..	..	..	..	Apex	11	27	101	10	63	1 Hd.	....	14.3
..	..	..	..	Renown	9	24	99	10	60	1	Bl. Sh.	15.2
No significant difference between varieties.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes.

1B 5 4 B Albert D. James, Waldeck.
1B 5 5 A Harry A. Paulsen, Scottsburg.
1B 5 9 B Bowyer Bradford, Jr., Lawson.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 6

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
				ALFRED J. LEACH, COLFAX								
2A	6	1	B	Marquis	....	....	....	....	....	..	....	....
..	..	..	..	Ceres	....	....	....	....	....	..	....	....
..	..	..	..	Reward	....	....	102	....	....	..	....	....
..	..	..	..	Thatcher	11	30	....	9	62	1	S bl.	14.4
..	..	..	..	Apex	22	32	....	9	64	1 Hd.	....	14.5
..	..	..	..	Renown	22	30	....	9	64	1 Hd.	....	14.6
(Yields rejected. Samples incomplete).												
				DONALD A. BUCHANAN, FRANCIS								
2A	6	2	B	Marquis	2	....	....	10	*	†	....	13.0
..	..	..	..	Ceres	7	....	....	10	61	3	G. I.	13.6
..	..	..	..	Reward	....	....	87	10	....	..	....	14.3
..	..	..	..	Thatcher	5	....	....	10	62	1	....	14.4
..	..	..	..	Apex	7	....	....	10	63.5	2	G. I.	14.0
..	..	..	..	Renown	7	....	....	10	62	2	G.	14.4
(Samples incomplete).												

* Insufficinet to weigh. † Insufficient to grade.

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
GEORGE L. NELSON, WILCOX												
2A	6	3	A	Marquis.....	14	40	86	9.5	57.5	5	G.	11.4
..	..	..	..	Ceres.....	18	40	86	10	61	3	G. I.	11.7
..	..	..	..	Reward.....	23	37	79	10	63.5	4	G.	13.4
..	..	..	..	Thatcher.....	30	38	84	10	63.5	4	G.	13.1
..	..	..	..	Apex.....	33	39	86	10	64	1	....	13.1
..	..	..	..	Renown.....	31	38	84	10	62.5	2	G.	13.6
(Yields incomplete).												
CAMERON A. HUBBS, MILESTONE												
2A	6	3	B	Marquis.....	13	....	....	....	58.5	2	Sh.	12.5
..	..	..	..	Ceres.....	17	....	....	....	63.5	1 Hd.	....	12.8
..	..	..	..	Reward.....	18	....	....	....	65.5	1	S g.	14.0
..	..	..	..	Thatcher.....	22	....	....	....	64	1 Hd.	....	14.1
..	..	..	..	Apex.....	24	....	....	....	65	1 Hd.	....	13.5
..	..	..	..	Renown.....	23	....	....	....	63	1	S g.	13.9
Necessary difference—1.4 bushels.												
DONALD C. CAMPBELL, AVONLEA												
1A	6	4	A	Marquis.....	15	27	93	10	65.5	1 Hd.	....	15.4
..	..	..	..	Ceres.....	14	25	92	10	65	1 Hd.	....	16.9
..	..	..	..	Reward.....	13	25	90	10	66	1 Hd.	....	17.4
..	..	..	..	Thatcher.....	17	24	95	10	65.5	1 Hd.	....	16.2
..	..	..	..	Apex.....	13	27	94	10	65	1 Hd.	....	16.3
..	..	..	..	Renown.....	15	30	91	10	64	1 Hd.	....	17.4
Necessary difference—1.7 bushels.												
GEORGE P. MACHMER, SPRING VALLEY												
1A	6	4	B	Marquis.....	18	42	95	6	56.5	5	V g.	15.4
..	..	..	..	Ceres.....	30	44	93	7.6	62	1	S g.	14.8
..	..	..	..	Reward.....	15	37	90	5.3	66.5	1 Hd.	....	15.8
..	..	..	..	Thatcher.....	39	40	92	8.3	64	1	S g.	14.6
..	..	..	..	Apex.....	30	39	93	6.7	62	1	S g.	15.6
..	..	..	..	Renown.....	34	39	93	8.3	63.5	1	S g.	15.9
No significant difference between varieties.												
LLOYD O. LIND, BAILDON												
1A	6	5	A	Marquis.....	7	23	....	6.3	62.5	1	....	14.1
..	..	..	..	Ceres.....	6	24	....	5	64	1 Hd.	....	14.3
..	..	..	..	Reward.....	4	25	....	4	62	1	....	14.8
..	..	..	..	Thatcher.....	9	26	....	7.3	62.5	1	....	14.2
..	..	..	..	Apex.....	8	23	....	5.3	63	1	....	14.2
..	..	..	..	Renown.....	7	23	....	5	65.5	1 Hd.	....	15.5
Necessary difference—1.1 bushels.												
WILLIAM B. GREEN, BOHARM												
1A	6	5	B	Marquis.....	31	35	88	9.6	63	1	S g.	13.6
..	..	..	..	Ceres.....	30	35	87	9.7	65	1	S g.	14.5
..	..	..	..	Reward.....	26	29	84	9.6	66.5	1	S g.	16.7
..	..	..	..	Thatcher.....	35	30	86	9.6	64	2	G.	14.9
..	..	..	..	Apex.....	32	29	86	9.7	64.5	1	S g.	15.3
..	..	..	..	Renown.....	32	31	87	9.7	63	3	Sh. G.	15.5
No significant difference between varieties.												
CLIFFORD B. ELDER, DRINKWATER												
2A	6	6	A	Marquis.....	....	20	84	10	56.5	4	Sh.	17.6
..	..	..	..	Ceres.....	....	21	81	9.9	56.5	3	L w.	17.4
..	..	..	..	Reward.....	....	22	73	10	*	†	....	17.6
..	..	..	..	Thatcher.....	....	20	77	10	52	6	Bl. Sh.	18.9
..	..	..	..	Apex.....	....	21	84	10	56	4	Sh. L w.	17.8
..	..	..	..	Renown.....	....	19	77	10	51	6	L w.	17.9
(Yields rejected. Heavy grasshopper damage).												
JACK HARLTON, STONY BEACH												
2A	6	6	B	Marquis.....	11	38	....	9.5	57	3	L w.	12.6
..	..	..	..	Ceres.....	17	38	....	9.8	62	1	S sh.	13.3
..	..	..	..	Reward.....	17	37	....	9.6	65.5	1 Hd.	....	15.0
..	..	..	..	Thatcher.....	33	36	....	9.8	63	2	Bl. G.	14.0
..	..	..	..	Apex.....	29	37	....	9.9	63.5	1 Hd.	....	14.1
..	..	..	..	Renown.....	30	39	....	9.6	63.5	2	G.	15.4
(Yields incomplete).												
STANLEY P. SORENSON, ROULEAU												
2A	6	6	C	Marquis.....	2	31	....	8.9	*	†	....	15.3
..	..	..	..	Ceres.....	19	32	87	8.3	58.5	3	P. G.	14.5
..	..	..	..	Reward.....	17	32	84	8	62	2	P.	15.0
..	..	..	..	Thatcher.....	22	31	86	8.8	57.5	4	P. Sh.	15.9
..	..	..	..	Apex.....	20	31	86	8.8	59.5	2	L w.	15.7
..	..	..	..	Renown.....	23	33	87	8.8	59	4	S p. G.	14.6
Necessary difference—2.2 bushels.												

* Insufficient to weigh. † Insufficient to grade.

Wheat Pool District 6—*Continued*

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
ERNEST F. H. KOCH, EDENWOLD												
2A	6	7	A	Marquis	....	....	....	....	55.5	6	G. Sh.	16.2
..	..	..	..	Ceres	....	....	....	....	60	5	G. Sh.	15.6
..	..	..	..	Reward	....	....	....	....	63	1	G. Sh.	16.3
..	..	..	..	Thatcher	....	....	....	....	59	5	G. Sh.	16.9
..	..	..	..	Apex	....	....	....	....	60	5	G. Sh.	17.5
..	..	..	..	Renown	....	....	....	....	60	5	G. Sh.	17.6
(Yields discarded. Considerable grasshopper damage).												
RAY C. CLARKE, R.R. No. 2, REGINA												
2A	6	7	B	Marquis	12	42	....	10	53	5	L w.	11.7
..	..	..	..	Ceres	15	42	....	10	59	2	L w.	12.1
..	..	..	..	Reward	20	39	88	10	63	1 Hd.	....	13.6
..	..	..	..	Thatcher	35	39	88	10	63	1	S g.	13.0
..	..	..	..	Apex	38	40	90	10	64.5	1 Hd.	....	13.5
..	..	..	..	Renown	39	40	92	10	64	2	G.	14.7
Necessary difference—3.4 bushels.												
WILLIAM R. CHUBB, AVONHURST												
2A	6	8	B	Marquis	8	23	....	8.7	56.5	4	Sh. G.	18.5
..	..	..	..	Ceres	14	24	....	9	58.5	3	Sh.	18.3
..	..	..	..	Reward	10	26	....	8	63.5	1	....	17.6
..	..	..	..	Thatcher	14	25	....	9	58.5	3	Sh. G.	17.9
..	..	..	..	Apex	12	25	....	7.3	58.5	3	Sh. G.	18.6
..	..	..	..	Renown	15	25	....	8.3	57.5	3	Sh. G.	17.5
Necessary difference—2.0 bushels.												
RICHARD C. SEYMOUR, FORT QU'APPELLE												
3A	6	9	A	Marquis	1	32	92	9.7	*	†	....	11.0
..	..	..	..	Ceres	8	34	92	9.3	62	1	S g.	10.6
..	..	..	..	Reward	2	32	91	9.7	*	†	....	13.2
..	..	..	..	Thatcher	16	33	93	9.7	63.5	1	S bl.	11.8
..	..	..	..	Apex	19	33	93	9.3	65	1 Hd.	....	12.3
..	..	..	..	Renown	21	35	93	9.3	64	1	....	12.5
Necessary difference—4.7 bushels.												
WILLIAM R. WRIGHT, BALCARRES												
3A	6	9	B	Marquis	13	36	....	7.3	55.5	4	Sh.	13.6
..	..	..	..	Ceres	22	36	....	8	59	2	L w.	13.9
..	..	..	..	Reward	22	35	....	8.7	64.5	1	....	14.8
..	..	..	..	Thatcher	38	36	....	9.3	63	1	....	14.3
..	..	..	..	Apex	36	36	....	9.3	64	1	....	15.1
..	..	..	..	Renown	36	36	....	9.3	63.5	1	....	15.4
Necessary difference—5.1 bushels.												
W. T. BALFOUR, LUMSDEN												
2B	6	10	C	Marquis	34	41	96	9	60.5	1	....	14.2
..	..	..	..	Ceres	49	39	96	9	64	1 Hd.	....	14.6
..	..	..	..	Reward	48	36	91	9	65.5	1 Hd.	....	15.2
..	..	..	..	Thatcher	63	38	91	9	64	1 Hd.	....	14.9
..	..	..	..	Apex	55	38	96	8.7	64	1 Hd.	....	14.5
..	..	..	..	Renown	57	38	96	9.3	63.5	1 Hd.	....	15.5
Necessary difference—2.6 bushels.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

2A 6 1 A Edward R. Vanstone, Lang.
2A 6 2 C Clifford W. Kennedy, Kronau.
2A 6 8 A Ernest B. Donnelly, Indian Head.
2B 6 10 A W. A. R. McLean, Lumsden.
2A 6 10 B Robert N. Martin, Disley.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 7

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
ROBERT A. TYREMAN, DOONSIDE												
3A	7	1	A	Marquis	6	28	101	8.7	48	Feed	L w.	13.2
..	..	..	..	Ceres	12	34	98	7.7	56.5	4	V g.	13.8
..	..	..	..	Reward	15	34	97	8	62	1	S g.	13.3
..	..	..	..	Thatcher	19	30	100	9	61	4	V g.	15.0
..	..	..	..	Apex	21	31	100	8	63	3	G.	15.2
..	..	..	..	Renown	20	31	99	8.3	63	4	V g.	15.2
Necessary difference—2.7 bushels.												

* Insufficient to weigh. † Insufficient to grade.

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
				JOHN E. McCANNEL, DOONSIDE								
3A	7	1	B	Marquis	1	....	....	....	*	†	....	11.3
..	..	..	..	Ceres	5	....	....	....	58.5	3	G.	12.0
..	..	..	..	Reward	....	....	....	....	....	..	....	....
..	..	..	..	Thatcher	11	....	....	....	63	3	G.	13.5
..	..	..	..	Apex	16	....	....	....	64	4	V g.	13.9
..	..	..	..	Renown	16	....	....	....	63	4	V g.	14.2
(Yields incomplete).												
				THOMAS PURDEY, MOOSOMIN								
3A	7	2	A	Marquis	....	32	78	10	....	..	....	....
..	..	..	..	Ceres	....	33	78	10	....	..	....	....
..	..	..	..	Reward	....	33	74	10	....	..	....	....
..	..	..	..	Thatcher	....	31	76	10	....	..	....	....
..	..	..	..	Apex	....	32	78	10	....	..	....	....
..	..	..	..	Renown	....	30	77	10	....	..	....	....
(Destroyed by stock. No samples received).												
				LLOYD A. GRIFFIN, MOOSOMIN								
3A	7	2	B	Marquis	....	34	98	8.7	....	..	....	....
..	..	..	..	Ceres	....	33	96	8	....	..	....	....
..	..	..	..	Reward	....	30	95	7	....	..	....	....
..	..	..	..	Thatcher	....	31	96	9.3	....	..	....	....
..	..	..	..	Apex	....	32	98	8.7	....	..	....	....
..	..	..	..	Renown	....	32	99	7.7	....	..	....	....
(Destroyed by stock. No samples received).												
				WILSON HALL, VANDURA								
3A	7	3	A	Marquis	13	37	104	10	51	6	L w.	11.1
..	..	..	..	Ceres	25	38	103	10	59	3	Sh. G.	12.2
..	..	..	..	Reward	20	36	94	9	62.5	2	G.	12.6
..	..	..	..	Thatcher	32	36	103	10	63	2	Bl. G.	13.0
..	..	..	..	Apex	37	37	103	10	64	1	S g.	14.1
..	..	..	..	Renown	35	36	103	10	64	3	G.	15.2
Necessary difference—3.4 bushels.												
				HAROLD L. LINCOLN, R.R. No. 1, MANOR								
3A	7	3	B	Marquis	17	....	....	8	55.5	4	P. Sh.	15.1
..	..	..	..	Ceres	19	....	....	4	61	2	G.	15.3
..	..	..	..	Reward	19	....	....	2	63	1	....	16.7
..	..	..	..	Thatcher	31	....	....	9	63.5	2	G.	16.0
..	..	..	..	Apex	24	....	....	10	64	2	G.	16.1
..	..	..	..	Renown	30	....	....	10	63.5	2	G. P.	16.4
Necessary difference—5.4 bushels.												
				JAMES A. A. KEITH, INCHKEITH								
2A	7	4	A	Marquis	4	38	97	4.7	48.5	Feed	L w.	12.2
..	..	..	..	Ceres	9	36	94	5.3	56	4	L w.	12.5
..	..	..	..	Reward	3	33	93	3	58	2	L w.	13.5
..	..	..	..	Thatcher	20	34	95	6.7	62.5	1	S bl.	13.6
..	..	..	..	Apex	22	36	96	9	62.5	1 Hd.	....	14.3
..	..	..	..	Renown	23	36	97	9	63	1	S g.	14.7
Necessary difference—3.4 bushels.												
				MISS ETHEL M. BROWN, WINDTHORST								
2A	7	4	B	Marquis	....	36	98	9	*	†	....	14.4
..	..	..	..	Ceres	....	34	98	8.7	55.5	4	B sh.	14.4
..	..	..	..	Reward	....	....	....	8.7	....	..	....	....
..	..	..	..	Thatcher	....	33	98	9.7	61	2	Sh. G.	14.9
..	..	..	..	Apex	....	35	98	9	62.5	2	G.	15.6
..	..	..	..	Renown	....	32	98	9	63	2	G.	15.9
(Yields incomplete).												
				EMILE L. J. LABRECHE, MONTMARTRE								
3A	7	6	A	Marquis	....	37	102	9	53	5	B sh.	13.1
..	..	..	..	Ceres	....	37	97	8.7	60	1	Sh.	13.2
..	..	..	..	Reward	....	30	98	6.7	....	..	....	....
..	..	..	..	Thatcher	....	35	98	9	63	1	S bl.	15.0
..	..	..	..	Apex	....	35	101	9	64	1 Hd.	....	15.3
..	..	..	..	Renown	....	35	100	8.7	63	1	S g.	15.7
(Yields rejected. Samples incomplete).												
				ALBERT F. RIEDER, PEEBLES								
2A	7	6	B	Marquis	9	36	100	10	51	6	B sh.	12.2
..	..	..	..	Ceres	17	34	100	9	57.5	3	Sh.	13.3
..	..	..	..	Reward	10	30	97	9	61	3	Sh.	14.5
..	..	..	..	Thatcher	18	30	104	10	62.5	1 Hd.	....	14.2
..	..	..	..	Apex	22	33	104	10	63.5	1	....	14.9
..	..	..	..	Renown	22	31	104	10	64	1 Hd.	....	16.1
Necessary difference—4.7 bushels.												

* Insufficient to weigh. † Insufficient to grade.

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
LORENZE L. SCHNEIDER, WOLSELEY												
3A	7	7	A	Marquis	....	26	....	8	*	†	....	15.5
..	..	..	..	Ceres	....	27	80	8	56.5	4	L w.	14.7
..	..	..	..	Reward	....	28	79	9	63	3	G.	15.3
..	..	..	..	Thatcher	....	27	80	9	60.5	2	G.	14.4
..	..	..	..	Apex	....	28	81	8	61.5	2	G.	15.0
..	..	..	..	Renown	....	27	80	9	62	3	G.	14.7
(Yields discarded. Considerable grasshopper damage).												
NORMAN YATES, GRENFELL												
3A	7	7	B	Marquis	6	35	....	5	54	5	L w. G.	14.1
..	..	..	..	Ceres	13	34	95	6	61	2	P.	14.2
..	..	..	..	Reward	8	29	94	5	63	1	....	14.5
..	..	..	..	Thatcher	17	31	98	9	61	3	P. G.	15.0
..	..	..	..	Apex	17	33	98	10	63	1	....	15.1
..	..	..	..	Renown	18	33	98	9	62.5	2	G.	14.9
Necessary difference—2.6 bushels.												
E. LLOYD GRAY, ROCANVILLE												
3A	7	8	A	Marquis	12	29	80	9.7	56	4	L w.	13.7
..	..	..	..	Ceres	19	30	80	9.7	61	1	Sh.	13.7
..	..	..	..	Reward	20	28	79	10	62	1	S g.	14.6
..	..	..	..	Thatcher	23	29	79	9.3	62	2	Bl. G.	14.9
..	..	..	..	Apex	22	29	78	9	63	2	G.	15.0
..	..	..	..	Renown	25	29	79	9	62.5	3	Sh. G.	15.1
No significant difference between varieties.												
ALLAN G. STRANDLUND, PERCIVAL												
3A	7	8	B	Marquis	8	37	102	9.7	49	Feed	L w.	12.3
..	..	..	..	Ceres	17	36	101	9	57	3	P. Sh.	12.4
..	..	..	..	Reward	13	31	100	9.7	61	2	Sh. G.	12.9
..	..	..	..	Thatcher	23	31	102	10	62	3	Sh. G.	13.0
..	..	..	..	Apex	27	33	101	9.7	62.5	2	S g.	14.1
..	..	..	..	Renown	24	32	102	9.7	63	3	G.	14.6
Necessary difference—6.1 bushels.												
JOHNNIE D. SALKELD, GERALD												
3A	7	9	A	Marquis	25	40	110	8.3	59.5	2	G.	13.5
..	..	..	..	Ceres	26	40	105	8.3	60	2	G. Sh.	13.3
..	..	..	..	Reward	24	36	101	8	60.5	3	G.	14.0
..	..	..	..	Thatcher	43	38	103	7.3	61.5	3	G.	14.1
..	..	..	..	Apex	38	36	108	6.7	62	4	V g.	14.9
..	..	..	..	Renown	45	38	104	8	62.5	4	G.	15.1
Necessary difference—4.9 bushels.												
JOHN R. ILLINGWORTH, ATWATER												
3A	7	9	B	Marquis	14	40	101	9	53.5	5	L w.	12.2
..	..	..	..	Ceres	23	36	99	9	59	2	L w.	13.4
..	..	..	..	Reward	24	32	99	6	63.5	1	....	13.4
..	..	..	..	Thatcher	28	34	107	9	61	2	G. Bl.	13.9
..	..	..	..	Apex	29	36	109	10	62	2	St. G.	15.0
..	..	..	..	Renown	31	36	109	9	62	1	....	15.4
Necessary difference—4.3 bushels.												
ERNEST WM. STILLBORN, LEMBERG												
3A	7	10	A	Marquis	14	....	109	6.5	56.5	4	L w.	12.3
..	..	..	..	Ceres	21	33	102	....	62	3	G.	12.9
..	..	..	..	Reward	18	34	99	....	64	1	S g.	14.2
..	..	..	..	Thatcher	15	34	102	9	62	2	S g. Sh.	14.1
..	..	..	..	Apex	24	34	108	8.7	63.5	1	S g.	14.3
..	..	..	..	Renown	28	35	106	8	64	1	S g.	15.5
No significant difference between varieties.												
JAMES GROUNDWATER, WALDRON												
3A	7	10	B	Marquis	16	37	105	9.3	55	5	V g. B sh.	11.4
..	..	..	..	Ceres	26	37	102	8.7	57	4	P. Sh.	13.6
..	..	..	..	Reward	23	32	100	8.3	63	3	G.	13.9
..	..	..	..	Thatcher	34	34	102	9.3	61	2	Sh. G.	13.4
..	..	..	..	Apex	33	35	104	9.3	62.5	2	G.	13.6
..	..	..	..	Renown	41	35	103	9	62	3	G.	15.4
Necessary difference—4.8 bushels.												

* Insufficient to weigh. † Insufficient to grade.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

2A 7 5 A Donald H. McKay, Corning. 2A 7 5 B Samuel E. Allan, Creelman.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 8

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
JON ROBERT EGILSSON, CALDER												
3B	8	1	A	Marquis.....	23	....	....	....	59	2	Sh. G.	12.1
..	..	..	..	Ceres.....	28	....	....	....	62.5	2	G.	13.0
..	..	..	..	Reward.....	28	....	....	....	64.5	2	G.	14.0
..	..	..	..	Thatcher.....	35	....	....	....	63	2	Bl. G.	13.1
..	..	..	..	Apex.....	29	....	....	....	63.5	1	S g.	14.0
..	..	..	..	Renown.....	31	....	....	....	63	2	G.	15.2
Necessary difference—5.0 bushels.												
MISS JUNE EILEEN SHARP, ROKEBY												
3C	8	2	A	Marquis.....	17	38	94	....	57.5	3	Sh.	11.8
..	..	..	..	Ceres.....	22	37	94	....	62.5	1	....	12.4
..	..	..	..	Reward.....	14	36	98	....	65	1	....	13.6
..	..	..	..	Thatcher.....	23	36	97	....	64	1	....	13.0
..	..	..	..	Apex.....	20	36	98	....	64.5	1	....	13.7
..	..	..	..	Renown.....	21	37	98	....	64	1	S g.	14.2
No significant difference between varieties.												
JACK MATTHEWS, DUFF												
3A	8	3	A	Marquis.....	13	....	....	....	49	Feed	B sh. L w.	12.6
..	..	..	..	Ceres.....	19	....	....	....	54.5	5	Sp.	13.3
..	..	..	..	Reward.....	17	....	....	....	58	Rej. 3	Sp.	14.1
..	..	..	..	Thatcher.....	27	....	....	....	60	2	B bl.	14.0
..	..	..	..	Apex.....	22	....	....	....	60	3	Sp.	15.0
..	..	..	..	Renown.....	24	....	....	....	58.5	3	G. Sp.	15.6
Necessary difference—6.3 bushels.												
DAN MATTHEW DRAPER, YORKTON												
3C	8	4	A	Marquis.....	5	....	....	....	47.5	Feed	B sh.	12.2
..	..	..	..	Ceres.....	8	....	....	....	52.5	5	L w.	13.2
..	..	..	..	Reward.....	8	....	....	....	57	4	Sh.	13.9
..	..	..	..	Thatcher.....	17	....	....	....	62.5	2	Bl. G.	14.0
..	..	..	..	Apex.....	13	....	....	....	62.5	2	G.	15.5
..	..	..	..	Renown.....	29	....	....	....	63.5	1	....	15.6
Necessary difference—10 bushels.												
ARTHUR GEO. GRIFFITH, WILLOWBROOK												
3C	8	4	B	Marquis.....	....	38	97	9	*	†	....	12.7
..	..	..	..	Ceres.....	....	38	96	7.3	*	†	....	13.2
..	..	..	..	Reward.....	....	38	91	5.7	....	..	....	....
..	..	..	..	Thatcher.....	....	34	98	9.7	*	†	....	14.4
..	..	..	..	Apex.....	....	36	98	9	*	†	....	15.4
..	..	..	..	Renown.....	....	38	97	9	*	†	....	16.5
(Yields rejected. Considerable bird damage).												
MICHAEL OSTAFIE, MIKADO												
3B	8	5	A	Marquis.....	13	....	101	10	52	6	B sh.	11.1
..	..	..	..	Ceres.....	18	....	101	10	59	2	Sh.	12.6
..	..	..	..	Reward.....	....	....	....	....	....	..	....	....
..	..	..	..	Thatcher.....	23	....	102	10	62	2	Bl.	13.0
..	..	..	..	Apex.....	50	....	104	10	62	2	Bl.	14.0
..	..	..	..	Renown.....	24	....	105	10	62	2	G. I.	14.4
(Samples incomplete).												
IAIN COWAN MACLEAN, KAMSACK												
3B	8	5	B	Marquis.....	12	34	101	10	53.5	5	Sh. G.	11.2
..	..	..	..	Ceres.....	18	31	98	10	63	1	....	13.6
..	..	..	..	Reward.....	17	28	93	10	60	1	....	12.5
..	..	..	..	Thatcher.....	24	30	99	10	63.5	1	....	12.6
..	..	..	..	Apex.....	23	31	101	8	64	1	....	13.2
..	..	..	..	Renown.....	26	31	101	10	63.5	1	....	14.7
Necessary difference—2.4 bushels.												
LEON BERKLEY REAR, KAMSACK												
3B	8	5	C	Marquis.....	19	41	....	7.7	56	4	L w.	12.6
..	..	..	..	Ceres.....	29	40	....	8	60.5	3	Sh. G.	13.5
..	..	..	..	Reward.....	25	38	....	7.7	64	3	Sh. G.	14.5
..	..	..	..	Thatcher.....	36	39	....	9	64	2	Bl. G.	13.6
..	..	..	..	Apex.....	37	37	....	8.7	64	2	G.	14.3
..	..	..	..	Renown.....	43	38	....	9	64	3	Sh. G.	16.2
Necessary difference—8.9 bushels.												
WASYL P. PURA, TADMORE												
3C	8	6	A	Marquis.....	1	39	102	6	*	†	....	13.6
..	..	..	..	Ceres.....	6	37	99	8	51.5	6	B sh.	14.6
..	..	..	..	Reward.....	5	36	98	9	53	5	Sh.	15.1
..	..	..	..	Thatcher.....	12	36	102	9	59.5	4	G. Sh.	14.5
..	..	..	..	Apex.....	14	37	104	8	60.5	5	G.	16.1
..	..	..	..	Renown.....	15	39	105	10	59	6	G. F.	17.0
Necessary difference—4.1 bushels.												

* Insufficient to weigh. † Insufficient to grade.

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
DAVID GEORGE BIRRELL, INVERMAY												
3C	8	7	A	Marquis	9	39	117	9	44	Feed	B sh.	10.9
..	..	..	..	Ceres	13	39	115	8	50.5	Feed	B sh.	10.8
..	..	..	..	Reward	15	37	115	8.3	55	4	B sh.	12.2
..	..	..	..	Thatcher	31	37	116	7.3	62	1	S bl.	11.9
..	..	..	..	Apex	40	37	118	6.7	63	1 Hd.	....	12.8
..	..	..	..	Renown	42	38	116	8	63.5	1 Hd.	....	12.6
Necessary difference—5.6 bushels.												
HILTON OXLEY, PREECEVILLE												
3B	8	8	A	Marquis	1	36	....	10	*	†	....	12.6
..	..	..	..	Ceres	11	39	....	8	50	Feed	B sh.	12.9
..	..	..	..	Reward	10	34	....	9.3	53	5	B sh. G.	14.5
..	..	..	..	Thatcher	26	34	99	10	59.5	3	Sh. G.	14.7
..	..	..	..	Apex	26	34	100	7	62	1 Hd.	....	15.1
..	..	..	..	Renown	29	35	102	10	64	1	S g.	14.7
Necessary difference—4.1 bushels.												
FRANK EDWARD ABERDEEN TANNER, HINCHLIFFE												
4A	8	8	B	Marquis	13	42	104	10	48	Feed	L w.	10.0
..	..	..	..	Garnet	13	39	92	....	48	Feed	B sh. G.	9.6
..	..	..	..	Reward	22	40	95	10	61	2	Sh. G.	11.8
..	..	..	..	Thatcher	42	41	100	9.3	63.5	2	Sh. G.	11.4
..	..	..	..	Apex	39	40	103	6.3	62.5	1	S g.	12.7
..	..	..	..	Renown	47	41	103	7.3	64	2	S g.	12.3
Necessary difference—7.5 bushels.												
MIKE A. CHEREWYK, NORQUAY												
3B	8	9	A	Marquis	27	37	98	8	55.5	5	B sh. G.	11.8
..	..	..	..	Ceres	35	42	97	8	60	2	Sh. S g.	13.4
..	..	..	..	Reward	32	36	95	6	66	1 Hd.	....	14.6
..	..	..	..	Thatcher	47	37	100	7	64.5	1 Hd.	....	13.4
..	..	..	..	Apex	45	38	101	7	63.3	3	P. G.	14.1
..	..	..	..	Renown	55	40	102	4	64.5	1	S g.	15.2
Necessary difference—6.5 bushels.												
MISS MARGARET H. M. MALCOLM, STENEN												
3B	8	9	B	Marquis	14	43	99	8.7	48.5	Feed	B sh.	10.5
..	..	..	..	Ceres	23	45	98	9	53	5	Sh. G.	11.2
..	..	..	..	Reward	24	44	95	9.7	59	2	Sh. G.	12.3
..	..	..	..	Thatcher	45	42	....	9.7	63	1	S i.	12.0
..	..	..	..	Apex	43	40	109	8.3	62.5	1	S g.	12.7
..	..	..	..	Renown	51	42	103	7.3	62	2	G. I.	13.2
Necessary difference—7.7 bushels.												
LOUIS E. FREDERICK JOHN PILGRIM, PELLY												
3B	8	10	A	Marquis	23	37	104	9	58	2	Sh.	11.6
..	..	..	..	Ceres	29	36	102	9	60	2	Sh. G.	13.0
..	..	..	..	Reward	26	33	100	9	65	1	S g.	13.8
..	..	..	..	Thatcher	37	33	101	9	63.5	1	S g.	12.7
..	..	..	..	Apex	38	35	104	9	63	2	G.	13.3
..	..	..	..	Renown	36	35	104	9	63.5	2	G.	15.3
No significant difference between varieties.												
STANLEY NIMETZ, ARRAN												
3B	8	10	B	Marquis	16	....	....	....	56.5	4	B sh. G.	11.1
..	..	..	..	Ceres	22	....	....	....	61	2	P. G.	12.0
..	..	..	..	Reward	21	....	....	....	66	1	S g.	13.1
..	..	..	..	Thatcher	26	....	....	....	63	2	Bl. G.	12.2
..	..	..	..	Apex	29	....	....	....	63	2	G.	13.6
..	..	..	..	Renown	32	....	....	....	63.5	3	Sh. G.	13.7
Necessary difference—2.6 bushels.												
PHILIP PASIEKA, ARRAN												
3B	8	10	C	Marquis	17	43	82	....	55.5	4	L w	9.7
..	..	..	..	Ceres	23	42	82	....	61	1	Sh. St.	10.5
..	..	..	..	Reward	20	39	82	6	64.5	2	Bl. St.	11.2
..	..	..	..	Thatcher	29	38	84	8	63	2	Bl. G.	10.9
..	..	..	..	Apex	32	43	82	10	63	1	S g.	11.8
..	..	..	..	Renown	33	41	82	10	63	2	S g.	11.7
Necessary difference—3.9 bushels.												

* Insufficient to weigh. † Insufficient to grade.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

3B 8 1 B Paul Titoff, Wroxton.
3C 8 2 B Gordon M. MacKenzie, Rokeby.
3C 8 3 B Joe Gulash, Jr., McKim.
3C 8 6 B Avery Matlock, Gorlitz.
3C 8 7 B Metro N. Sawchuk, Sheho.
3B 8 7 C John Tretiak, Rama.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 9

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
ROBERT IRVING GILL, JASMIN												
3C	9	1	A	Marquis	12	37	95	9.7	51.5	6	B sh. G.	12.9
..	..	..	..	Ceres	18	37	92	10	57.5	3	Sh.	12.7
..	..	..	..	Reward	16	36	90	10	61.5	2	G. P.	13.7
..	..	..	..	Thatcher	25	35	97	9.3	62.5	1	....	13.0
..	..	..	..	Apex	33	37	100	9	65	1 Hd.	....	13.7
..	..	..	..	Renown	37	36	97	10	64.5	2	G.	14.6
Necessary difference—5.2 bushels.												
BEN USHER, BALCARRES												
3A	9	1	B	Marquis	10	....	....	....	54	5	B sh.	14.4
..	..	..	..	Ceres	16	....	....	....	58	2	Sh.	13.4
..	..	..	..	Reward	15	....	....	....	61.5	1	S sh.	14.7
..	..	..	..	Thatcher	23	....	....	....	62	1	S sh.	15.9
..	..	..	..	Apex	22	....	....	....	61	1	S sh.	14.3
..	..	..	..	Renown	26	....	....	....	61.5	1	Sh.	15.1
Necessary difference—2.4 bushels.												
WILLIAM J. STAN, DYSART												
3A	9	2	A	Marquis	11	....	....	....	56	4	B sh. G.	17.7
..	..	..	..	Ceres	14	....	....	....	58	2	Sh.	17.3
..	..	..	..	Reward	12	....	....	....	64	2	G.	17.6
..	..	..	..	Thatcher	18	....	....	....	59	3	Sh. G.	17.4
..	..	..	..	Apex	15	....	....	....	59	3	Sh. G.	17.9
..	..	..	..	Renown	15	....	....	....	58	3	Sh. G.	17.1
No significant difference between varieties.												
JOHN LUNG, SOUTHEY												
2B	9	2	B	Marquis	15	33	89	7	62	1 Hd.	....	15.3
..	..	..	..	Ceres	19	30	87	5	63	1 Hd.	....	15.0
..	..	..	..	Reward	16	28	85	7	65	1	S g.	16.3
..	..	..	..	Thatcher	18	24	87	9	61.5	1	S bl.	15.8
..	..	..	..	Apex	19	30	87	8	62	1	S g.	15.8
..	..	..	..	Renown	18	30	87	7.3	61.5	1	S g.	15.6
No significant difference between varieties.												
MISS ELIZABETH RUMBALL, SOUTHEY												
2B	9	3	A	Marquis	13	24	92	9.3	64	1 Hd.	....	16.0
..	..	..	..	Ceres	13	23	92	9	64.5	1 Hd.	....	16.3
..	..	..	..	Reward	13	22	90	9.7	65.5	1 Hd.	....	16.9
..	..	..	..	Thatcher	16	22	91	9	64	1 Hd.	....	16.1
..	..	..	..	Apex	14	26	91	9.3	63.5	1 Hd.	....	16.2
..	..	..	..	Renown	13	24	91	9.7	63	1 Hd.	....	16.5
No significant difference between varieties.												
LLOYD E. B. NIXON, EARL GREY												
2B	9	4	A	Marquis	18	35	97	10	61	1	Sh.	15.9
..	..	..	..	Ceres	18	29	95	9	64.5	1	Sh. Bl.	15.6
..	..	..	..	Reward	17	27	92	9.7	65	1 Hd.	....	16.5
..	..	..	..	Thatcher	28	30	95	10	62	1	S bl.	16.3
..	..	..	..	Apex	20	32	95	9.3	63.5	1 Hd.	....	16.2
..	..	..	..	Renown	20	28	95	9.7	62	1	Bl. Sh.	16.2
Necessary difference—4.1 bushels.												
HAROLD WILFRED MORTON, GIBBS												
2B	9	4	B	Marquis	35	40	101	6	61	3	Sh. G.	12.3
..	..	..	..	Ceres	38	36	100	8	64	1 Hd.	....	13.6
..	..	..	..	Reward	36	36	99	6	66.5	1 Hd.	....	14.6
..	..	..	..	Thatcher	39	32	99	10	64	1 Hd.	....	13.0
..	..	..	..	Apex	47	36	101	8	64.5	1	S g.	14.2
..	..	..	..	Renown	46	37	100	9	64.5	1 Hd.	....	14.1
No significant difference between varieties.												
WILLIAM JAMES LOCK, CYMRIC												
2B	9	5	A	Marquis	15	24	97	10	62	1	S g.	16.7
..	..	..	..	Ceres	16	26	101	8.7	62	1	S g.	15.7
..	..	..	..	Reward	15	25	92	8.7	65	1	S g.	17.1
..	..	..	..	Thatcher	18	23	94	10	62	1	S g.	17.4
..	..	..	..	Apex	15	25	94	8	62	1	S g.	16.4
..	..	..	..	Renown	15	22	94	7.3	62	2	Sh. S g.	16.8
No significant difference between varieties.												
ARCHIE F. CAMPBELL, GOVAN												
2B	9	5	B	Marquis	13	28	108	9	62	1	....	13.8
..	..	..	..	Ceres	11	24	107	9.3	63	1	....	14.6
..	..	..	..	Reward	9	24	105	8	64.5	1	....	15.8
..	..	..	..	Thatcher	16	25	107	9.7	63	2	G. Bl.	15.3
..	..	..	..	Apex	15	26	107	9.3	63.5	1	....	15.2
..	..	..	..	Renown	12	22	107	9.7	62.5	1	....	15.8
Necessary difference—1.8 bushels.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
				WILLIAM ROBERT POPE, DRAKE								
2B	9	6	A	Marquis	17	36	100	10	59.5	3	G. I.	14.6
..	..	..	..	Ceres	15	36	95	10	60	2	Sh. G.	16.2
..	..	..	..	Reward	14	34	95	10	64.5	1	S g.	16.0
..	..	..	..	Thatcher	20	35	96	10	59	3	Sh. G.	17.2
..	..	..	..	Apex	18	35	98	10	61.5	1	S g.	14.8
..	..	..	..	Renown	20	35	97	10	59	3	Sh. G.	15.6
Necessary difference—2.1 bushels.												
				HARRY F. WODTKE, PUNNICHY								
3C	9	7	A	Marquis	12	38	104	10	51	6	B sh.	14.5
..	..	..	..	Ceres	23	39	103	10	51.5	4	Sh.	13.8
..	..	..	..	Reward	20	35	99	10	62	1	....	14.7
..	..	..	..	Thatcher	34	35	102	10	61	2	G.	13.8
..	..	..	..	Apex	35	39	101	8	62	1	....	15.3
..	..	..	..	Renown	40	39	101	8	63	1	....	15.7
Necessary difference—1.9 bushels.												
				MISS IONA I. MURRAY, SEMANS								
2B	9	7	B	Marquis	11	28	92	10	60	1	....	16.6
..	..	..	..	Ceres	12	27	89	9	62.5	1 Hd.	....	15.8
..	..	..	..	Reward	12	24	84	10	64	1 Hd.	....	17.5
..	..	..	..	Thatcher	15	27	90	10	62	1 Hd.	....	16.0
..	..	..	..	Apex	13	28	90	10	63	1 Hd.	....	16.2
..	..	..	..	Renown	15	28	90	10	61.5	1	....	16.2
Necessary difference—2.2 bushels.												
				CALVIN CLARENCE KRAUSE, JANSEN								
3C	9	8	A	Marquis	14	31	....	9.3	61	1	....	16.4
..	..	..	..	Ceres	14	31	....	8	62.5	1	....	16.5
..	..	..	..	Reward	12	29	....	8.3	64	1	....	16.7
..	..	..	..	Thatcher	17	30	....	9.7	61	2	Sh. P.	17.0
..	..	..	..	Apex	13	32	....	9	61.5	1	....	16.2
..	..	..	..	Renown	14	30	....	9	60	2	Sh.	16.1
Necessary difference—1.5 bushels.												
				LEONARD GEORGE BOLT, DAFOE								
2B	9	8	B	Marquis	12	22	98	9	62.5	1	S i.	17.2
..	..	..	..	Ceres	11	24	96	9	64	1	S g.	16.8
..	..	..	..	Reward	10	25	91	8	65	1 Hd.	....	17.6
..	..	..	..	Thatcher	16	25	94	9	63	1	S bl.	17.0
..	..	..	..	Apex	12	26	94	9	63	1 Hd.	....	17.0
..	..	..	..	Renown	11	25	94	9	62	1	S g.	17.2
No significant difference between varieties.												
				ROBERT MURDOCK GILCHRIST, FOAM LAKE								
3C	9	9	A	Marquis	14	51	96	9.7	49.5	Feed	B sh.	13.6
..	..	..	..	Ceres	20	44	97	8.7	54.5	5	B sh.	13.8
..	..	..	..	Reward	33	49	94	8.3	61	2	Sh. G.	14.0
..	..	..	..	Thatcher	42	43	97	10	62	1	S bl.	15.1
..	..	..	..	Apex	31	38	97	7	63	1 Hd.	....	15.6
..	..	..	..	Renown	36	48	98	7.3	61.5	1	S g.	16.1
Necessary difference—9.1 bushels.												
				AUSTIN ANDREW DRYDEN, TUFFNELL								
3C	9	9	B	Marquis	17	37	108	7	56	4	Sh. G.	12.4
..	..	..	..	Ceres	24	40	107	7	60	2	G.	12.9
..	..	..	..	Reward	18	38	108	6.3	63.5	1	....	13.9
..	..	..	..	Thatcher	31	36	110	7.7	63	1	....	14.4
..	..	..	..	Apex	26	37	110	7	63.5	1 Hd.	....	14.6
..	..	..	..	Renown	23	40	112	8.7	62.5	1	....	16.7
No significant difference between varieties.												
				BALDUR G. HOWE, LESLIE								
3C	9	10	A	Marquis	4	....	....	....	46.5	Feed	B sh.	13.3
..	..	..	..	Ceres	3	....	....	....	49.5	6	B sh.	14.7
..	..	..	..	Reward	7	....	....	....	60	3	Sh.	14.6
..	..	..	..	Thatcher	13	....	....	....	62.5	1	Sp. S sh.	14.6
..	..	..	..	Apex	9	....	....	....	62	1	....	15.6
..	..	..	..	Renown	7	....	....	....	63	2	G.	16.2
No significant difference between varieties.												
				HAROLD HORNFORD, ELFROS								
3C	9	10	B	Marquis	7	....	93	10	47	Feed	....	14.9
..	..	..	..	Ceres	12	....	90	8	53.5	5	B sh. G.	15.0
..	..	..	..	Reward	12	....	88	10	57	3	Sh. G.	14.9
..	..	..	..	Thatcher	21	....	93	10	57	3	Sh. Bl.	15.6
..	..	..	..	Apex	19	....	93	6.7	59.5	3	Sh. G.	15.8
..	..	..	..	Renown	18	....	93	10	59	3	Sh. G.	15.3
Necessary difference—2.2 bushels.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

3C 9 3 B Miss Victoria Lazar, Lestock. 2B 9 6 B Christian Lekness, Hatfield.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 10

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
ROBERT SCHROEDER LESLIE, AYLESBURY												
2B	10	1	A	Marquis	10	23	91	10	60	1	S g.	15.8
..	..	..	..	Ceres	12	26	88	10	63	1	S g.	15.9
..	..	..	..	Reward	8	28	84	10	64.5	1 Hd.	....	17.2
..	..	..	..	Thatcher	13	24	87	10	62	1	....	16.5
..	..	..	..	Apex	10	24	88	10	62	1	....	15.8
..	..	..	..	Renown	8	26	87	10	61	2	Sh. G.	16.9
Necessary difference—1.8 bushels.												
CLAYTON EDGARSON McWILLIAMS, HOLDFAST												
2B	10	1	B	Marquis	9	....	....	....	59	3	Sh.	15.4
..	..	..	..	Ceres	13	....	....	....	63.5	1 Hd.	....	15.8
..	..	..	..	Reward	11	....	....	....	64	1 Hd.	....	16.5
..	..	..	..	Thatcher	18	....	....	....	64	1 Hd.	....	16.7
..	..	..	..	Apex	17	....	....	....	64	1 Hd.	....	17.1
..	..	..	..	Renown	15	....	....	....	63.5	1 Hd.	....	17.1
Necessary difference—3.1 bushels.												
LESLIE DAVID W. COOPER, TUGASKE												
1B	10	2	A	Marquis	10	21	85	10	56	4	Sh. L w.	17.1
..	..	..	..	Reliance	15	24	88	9.3	59	2	Sh.	15.9
..	..	..	..	Reward	12	23	84	9	61	1	Sh.	16.1
..	..	..	..	Thatcher	11	21	84	10	56	4	Sh. L w.	17.2
..	..	..	..	Apex	12	23	85	8.6	58	2	Sh.	16.5
..	..	..	..	Renown	13	23	85	8.6	57	3	Sh.	16.2
No significant difference between varieties.												
OTTO BROWN, DEMAINE												
1B	10	3	A	Marquis	7	....	....	....	60.5	2	S g.	15.6
..	..	..	..	Reliance	8	....	....	....	62	1	S g.	15.3
..	..	..	..	Reward	6	....	....	....	63	1	S g.	15.7
..	..	..	..	Thatcher	9	....	....	....	58	2	Sh. Bl.	15.9
..	..	..	..	Apex	10	....	....	....	61	1	G.	15.5
..	..	..	..	Renown	9	....	....	....	59.5	2	Bl. G.	15.5
No significant difference between varieties.												
LEO BROKOFSKY, DEMAINE												
1B	10	3	B	Marquis	8	....	....	....	59.5	3	G. I.	15.1
..	..	..	..	Reliance	8	....	....	....	61	1	S g.	15.6
..	..	..	..	Reward	4	....	....	....	62	1	S g.	16.4
..	..	..	..	Thatcher	8	....	....	....	59	2	Sh. G.	15.4
..	..	..	..	Apex	10	....	....	....	60.5	2	Sh. G.	15.2
..	..	..	..	Renown	11	....	....	....	58.5	4	Sh. G. I.	15.9
Necessary difference—3.0 bushels.												
HARLAN THOMAS EWING, WISETON												
1B	10	4	A	Marquis	19	32	91	10	59	2	Sh.	16.2
..	..	..	..	Ceres	23	32	89	9	60.5	2	Sh. G.	16.1
..	..	..	..	Reward	14	31	88	8	63.5	1	S g.	16.7
..	..	..	..	Thatcher	21	30	89	8.5	59.5	2	Bl. G.	16.4
..	..	..	..	Apex	22	32	89	9	61	1	Sh. G.	16.1
..	..	..	..	Renown	25	32	90	10	59	2	Sh. G.	15.7
Necessary difference—3.7 bushels.												
PHILIP DUNCAN WENSLEY, WISETON												
2B	10	4	B	Marquis	21	37	93	9	61	5	V g.	15.4
..	..	..	..	Ceres	20	35	90	9	61.5	5	V g.	15.8
..	..	..	..	Reward	19	35	90	9	64.5	5	V g.	17.5
..	..	..	..	Thatcher	27	35	90	9	60	5	V g.	16.1
..	..	..	..	Apex	20	35	90	7	60.5	5	V g.	15.9
..	..	..	..	Renown	20	35	90	9	60	5	V g.	16.0
Necessary difference—3.4 bushels.												
KENNETH GEORGE FISHER, BIRSAY												
1B	10	5	A	Marquis	10	26	113	8.7	60	2	Sh. G.	14.5
..	..	..	..	Reliance	9	26	112	7.7	62	2	Sh. G.	13.5
..	..	..	..	Reward	4	26	113	7.3	62.5	2	P. Sh.	15.3
..	..	..	..	Thatcher	12	29	112	8.7	59	2	Sh. Bl.	14.6
..	..	..	..	Apex	7	28	112	8	58	2	Sh. Bl.	15.8
..	..	..	..	Renown	12	29	112	6.3	59	3	P. Sh. G.	14.4
Necessary difference—3.3 bushels.												
MERVIN EARL BELL, CONQUEST												
2B	10	5	B	Marquis	5	21	....	10	61.5	1	Sh.	15.0
..	..	..	..	Ceres	7	19	....	10	63	2	Sh. G.	15.1
..	..	..	..	Reward	2	20	....	10	*	†	....	15.0
..	..	..	..	Thatcher	7	20	....	10	60	2	Bl.	15.5
..	..	..	..	Apex	6	20	....	10	61.5	1	Sh.	15.7
..	..	..	..	Renown	5	19	....	10	59.5	2	Bl.	15.8
Necessary difference—1.5 bushels.												

* Insufficient to weigh. † Insufficient to grade.

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
JOHN ARTHUR EDGE, LOREBURN												
2B	10	6	A	Marquis	11	30	92	9.3	56	4	L w.	17.5
..	..	..	..	Ceres	13	32	92	8.3	58.5	2	Sh.	17.2
..	..	..	..	Reward	7	32	92	9	60	2	S g.	17.0
..	..	..	..	Thatcher	14	30	93	8.7	57	3	Bl. Sh.	17.8
..	..	..	..	Apex	12	31	92	9.3	57.5	3	Bl. Sh.	17.6
..	..	..	..	Renown	13	31	91	8.7	55.5	4	L w.	17.2
Necessary difference—1.1 bushels.												
CHESTER HOLMLUND, GLENSIDE												
2B	10	6	B	Marquis	8	27	82	9	58	3	Sh. G.	18.4
..	..	..	..	Ceres	12	29	80	8	60	3	P. Sh. G.	17.1
..	..	..	..	Reward	5	28	77	5	60	3	Sh. G.	17.4
..	..	..	..	Thatcher	10	29	82	9	58	3	Sh. Bl.	17.7
..	..	..	..	Apex	10	27	82	9	58.5	3	Sh. G.	18.4
..	..	..	..	Renown	12	29	79	7	57	3	Sh. G.	17.6
Necessary difference—1.8 bushels.												
JOHN R. McJANNET, DAVIDSON												
2B	10	7	A	Marquis	....	25	....	9	61	5	V g. I.	15.2
..	..	..	..	Ceres	27	26	....	8	61	2	V g. I.	15.4
..	..	..	..	Reward	29	27	....	7.7	65.5	1	S g.	15.3
..	..	..	..	Thatcher	25	24	....	9	59.5	2	Bl. Sh.	16.0
..	..	..	..	Apex	24	25	....	7.7	62	2	Sh. G. I.	14.6
..	..	..	..	Renown	28	25	....	9	60	2	Sh. G. I.	15.3
(Yields incomplete).												
FRANK DONALD SPRATT, DAVIDSON												
2B	10	7	B	Marquis	5	....	....	....	57	3	Sh.	18.3
..	..	..	..	Ceres	7	....	....	....	58.5	2	Sh.	18.4
..	..	..	..	Reward	2	....	....	....	*	†	....	18.0
..	..	..	..	Thatcher	4	....	....	....	58.5	2	Sh.	18.4
..	..	..	..	Apex	6	....	....	....	59.5	2	Sh.	18.1
..	..	..	..	Renown	4	....	....	....	58	2	Sh.	17.9
No significant difference between varieties.												
GORDON C. HUMPHREY, RENOWN												
2B	10	8	A	Marquis	15	24	96	9	61	1	Sh.	14.1
..	..	..	..	Ceres	17	28	94	8	62.5	2	Bl. Sh.	14.7
..	..	..	..	Reward	14	24	101	8.3	66	1 Hd.	....	15.3
..	..	..	..	Thatcher	22	26	94	9	62	2	Bl. S g.	14.8
..	..	..	..	Apex	16	25	97	9	63.5	1	S g.	14.4
..	..	..	..	Renown	19	27	96	8	62	2	S g.	14.8
Necessary difference—2.2 bushels.												
ROY GEORGE EMDE, IMPERIAL												
2B	10	8	B	Marquis	....	27	102	8	*	†	....	14.3
..	..	..	..	Ceres	....	36	100	9	53	5	L w.	14.4
..	..	..	..	Reward	....	28	100	8	*	†	....	15.3
..	..	..	..	Thatcher	....	30	106	9	59	2	Bl.	15.1
..	..	..	..	Apex	....	30	95	9	60	1	Sh.	16.1
..	..	..	..	Renown	....	28	103	8	59.5	2	Bl.	15.8
(Considerable grasshopper damage. Yields discarded).												
STANLEY E. McPHEE, HANLEY												
2B	10	9	B	Marquis	8	29	100	9.3	55	4	Bl. Sh.	14.0
..	..	..	..	Ceres	16	32	99	9	58	3	Sh. S sp.	14.9
..	..	..	..	Reward	13	30	96	8	62	3	Bl.	16.2
..	..	..	..	Thatcher	23	32	100	8.3	59	3	Bl.	15.0
..	..	..	..	Apex	15	30	100	7.3	60	3	Bl.	15.8
..	..	..	..	Renown	22	30	100	8.3	58	3	Bl. Sh.	16.3
Necessary difference—5.8 bushels.												
HOWARD J. SCHUMACHER, DONAVON												
2B	10	10	A	Marquis	17	35	101	9	63	1 Hd.	....	15.6
..	..	..	..	Ceres	20	37	103	8	63	1 Hd.	....	15.5
..	..	..	..	Reward	....	32	103	7	64.5	1 Hd.	....	16.8
..	..	..	..	Thatcher	20	34	102	8	62	1	Bl.	15.2
..	..	..	..	Apex	20	34	103	9	64	1 Hd.	....	15.5
..	..	..	..	Renown	20	33	103	9	62.5	1	....	15.6
(Considerable grasshopper damage to Reward. Yields discarded).												
STANLEY WILLIAM JACOB WILSON, ARDATH												
2B	10	10	B	Marquis	4	20	98	4	*	†	....	15.1
..	..	..	..	Ceres	11	23	96	10	59	2	L w.	14.0
..	..	..	..	Reward	6	20	97	8	59	2	Bl. Sh.	15.3
..	..	..	..	Thatcher	10	21	96	9	58	2	Bl.	13.9
..	..	..	..	Apex	12	22	97	9.3	59	2	L w.	14.9
..	..	..	..	Renown	11	22	97	9.7	58	2	Bl. Sh.	14.0
Necessary difference—3.1 bushels.												

* Insufficient to weigh. † Insufficient to grade.

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

1B 10 2 B Harold N. Jackson, Riverhurst. 2B 10 9 A Elmer H. Catton, Hanley.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 11

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
CLIFFORD H. PITTMAN, KYLE												
1B	11	1	A	Marquis	17	23	82	....	61.5	1	Sh.	15.4
..	..	..	..	Reliance	18	22	83	....	62	1	S g.	15.3
..	..	..	..	Reward	14	20	79	....	64.5	1 Hd.	....	15.5
..	..	..	..	Thatcher	17	22	79	....	60.5	1	Sh.	15.6
..	..	..	..	Apex	16	22	79	....	62.5	1 Hd.	....	15.2
..	..	..	..	Renown	13	20	79	....	60.5	1	Sh.	15.3
No significant difference between varieties.												
GORDON OSWALD PRIME, KYLE												
1B	11	1	B	Marquis	21	28	93	8	62	3	G.	15.6
..	..	..	..	Reliance	20	24	92	7	63.5	2	G.	15.8
..	..	..	..	Reward	18	26	90	5	65	1	S g.	16.0
..	..	..	..	Thatcher	19	25	92	7	62	2	Bl. G.	16.2
..	..	..	..	Apex	22	29	93	8	63.5	1	S g.	15.4
..	..	..	..	Renown	17	28	91	6	62	3	G.	15.8
No significant difference between varieties.												
ELMER LESLEY BROWN, HUGHTON												
2B	11	2	A	Marquis	24	32	94	9	62.5	1	S bl.	14.7
..	..	..	..	Ceres	25	32	92	8	62.5	1	S sh.	14.8
..	..	..	..	Reward	20	31	88	7	64	1	S g.	16.5
..	..	..	..	Thatcher	26	30	88	9	60.5	2	Bl.	15.2
..	..	..	..	Apex	26	33	92	8	62.5	1	S bl.	15.1
..	..	..	..	Renown	25	31	93	9	61	1	S bl.	15.3
No significant difference between varieties.												
WILLIAM ALFRED EVANS, RICHLEA												
1B	11	3	A	Marquis	17	24	91	9.3	61	2	G.	15.9
..	..	..	..	Reliance	19	26	92	9.3	62	2	S g. P.	16.8
..	..	..	..	Reward	19	25	90	9.7	64	1	S g.	16.1
..	..	..	..	Thatcher	18	26	93	9.7	59	2	Bl. Sh.	16.1
..	..	..	..	Apex	17	27	90	9.3	61	1	S g.	15.4
..	..	..	..	Renown	16	27	91	10	58.5	3	Sh. G.	16.9
No significant difference between varieties.												
JAMES CHARLES KELLINGTON, SNIPE LAKE												
1B	11	3	B	Marquis	11	33	99	8.7	58	2	L w.	16.4
..	..	..	..	Reliance	13	31	100	8	59.5	2	L w.	16.0
..	..	..	..	Reward	12	30	100	8.7	62	1	S g.	16.4
..	..	..	..	Thatcher	11	28	100	8.7	57	3	L w.	16.5
..	..	..	..	Apex	12	30	101	8.3	59	2	L w.	16.5
..	..	..	..	Renown	11	27	98	8.7	56	4	L w.	16.0
No significant difference between varieties.												
EDMUND ALEXANDER DOUGLAS, EYRE												
1B	11	4	A	Marquis	19	34	....	9	63	1	Sh.	15.6
..	..	..	..	Reliance	20	30	....	10	63.5	1	Sh.	15.6
..	..	..	..	Reward	15	30	....	7	65	1	S g.	17.3
..	..	..	..	Thatcher	22	31	....	9	63	1	Bl.	15.3
..	..	..	..	Apex	19	31	....	9	63	1	S g.	15.5
..	..	..	..	Renown	20	31	....	9	62.5	2	Bl. G.	15.6
Necessary difference—1.1 bushels.												
WILLIAM ROBERT BENNETT, EATONIA												
1B	11	4	B	Marquis	4	11	84	9.3	56	4	B bl.	16.3
..	..	..	..	Reliance	6	11	82	9.7	56.5	4	B bl.	16.4
..	..	..	..	Reward	3	11	84	9.3	*	†	....	17.5
..	..	..	..	Thatcher	5	11	82	8.9	56	4	B bl.	17.4
..	..	..	..	Apex	3	9	82	10	*	†	....	17.0
..	..	..	..	Renown	2	7	83	9.7	*	†	....	17.7
Necessary difference—1.6 bushels.												
SHELDON L. ELLIOTT, FLAXCOMBE												
1B	11	5	A	Marquis	....	13	93	....	64	3	G. I.	17.3
..	..	..	..	Reliance	....	15	93	....	64.5	4	G. I.	17.7
..	..	..	..	Reward	....	17	81	....	63	3	G. I.	19.3
..	..	..	..	Thatcher	....	16	89	....	63	4	G. I.	17.2
..	..	..	..	Apex	....	16	88	....	64	2	G.	18.1
..	..	..	..	Renown	....	13	87	....	61.5	3	G. I.	18.3
(Yields discarded. Severe Hail damage).												
RAYMOND HAROLD FUHRMANN, NETHERHILL												
1B	11	6	A	Marquis	51	39	....	9.3	61	Sam.	H.	13.5
..	..	..	..	Reliance	56	39	....	8.7	62	Sam.	H.	13.1
..	..	..	..	Reward	42	39	....	9	65.5	Rej. 3	H.	16.4
..	..	..	..	Thatcher	65	38	....	9	63	Sam.	H.	14.9
..	..	..	..	Apex	50	37	....	8.3	64	Sam.	H.	14.7
..	..	..	..	Renown	59	40	....	9	62.5	Sam.	H.	16.0
No significant difference between varieties.												

* Insufficient to weigh. † Insufficient to grade.

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
CHARLES MORRIS HICKSON, KINDERSLEY												
1B	11	6	B	Marquis	33	41	88	9.7	62.5	3	G. I.	13.4
..	..	..	..	Reliance	33	41	98	9.3	62	3	P. Sh. G.	12.4
..	..	..	..	Reward	32	40	93	9	64.5	3	G. I.	15.0
..	..	..	..	Thatcher	37	41	89	9.3	60	3	Bl. Sh.	14.7
..	..	..	..	Apex	34	41	90	9.7	62.5	2	S g.	14.6
..	..	..	..	Renown	32	41	86	9	60	3	Sh. G.	14.3
No significant difference between varieties.												
PHILLIP ROSS JAVENS, ROSETOWN												
2B	11	7	A	Marquis	17	30	....	10	60	5	G. I.	17.1
..	..	..	..	Ceres	22	29	....	10	60	4	P. Sh. G.	16.6
..	..	..	..	Reward	23	30	....	10	61	2	G. I.	18.1
..	..	..	..	Thatcher	25	32	....	10	58.5	4	G. I.	17.9
..	..	..	..	Apex	19	29	....	10	62	4	G. I.	17.0
..	..	..	..	Renown	24	30	....	10	59	4	G. I.	17.7
No significant difference between varieties.												
WILLIAM SHANNON POWELL, ROSETOWN												
2B	11	7	B	Marquis	....	37	105	6	55	4	B sh.	10.0
..	..	..	..	Reliance	....	37	105	5.7	57.5	Rej. 3	E d.	8.9
..	..	..	..	Reward	....	36	105	5	62	2	St.	12.5
..	..	..	..	Thatcher	....	35	106	5	62	2	Bl. St.	11.6
..	..	..	..	Apex	....	36	105	4.7	62.5	2	St.	12.4
..	..	..	..	Renown	....	35	106	4.6	63	2	Bl. St.	12.6
(Yields discarded. Considerable grasshopper damage).												
HILLSIDE SCHOOL, ROSETOWN												
2B	11	7	C	Marquis	9	34	101	9.3	61	2	Bl. G.	12.4
..	..	..	..	Ceres	17	35	99	9.7	63	2	G.	12.6
..	..	..	..	Reward	14	34	100	9.7	66	1	S g.	14.4
..	..	..	..	Thatcher	24	34	99	9.3	64	2	Bl. G.	13.4
..	..	..	..	Apex	13	34	99	9.3	64	3	V g.	15.9
..	..	..	..	Renown	18	35	101	9.7	65.5	2	G.	14.3
No significant difference between varieties.												
BRUCE KENNETH McDONALD, STRANRAER												
1B	11	8	A	Marquis	25	30	89	10	63.5	2	G.	14.0
..	..	..	..	Reliance	29	31	90	10	65.5	1	S g.	13.8
..	..	..	..	Reward	23	30	88	9.7	66	2	G.	15.6
..	..	..	..	Thatcher	32	31	88	10	63	2	Bl. G.	14.0
..	..	..	..	Apex	28	32	89	10	64	1	S g.	14.3
..	..	..	..	Renown	29	30	88	10	62	2	G.	14.3
Necessary difference—3.0 bushels.												
HENRY BERNHARD SAWATZKY, HERSCHEL												
1B	11	8	B	Marquis	23	36	99	10	63	2	Bl. G.	16.8
..	..	..	..	Reliance	25	33	100	9.3	64	1	S bl.	16.3
..	..	..	..	Reward	22	39	93	8.3	65	1	S g.	17.9
..	..	..	..	Thatcher	33	37	95	9	61.5	2	Bl. Sh.	16.7
..	..	..	..	Apex	24	36	97	9.3	63.5	2	Bl. G.	17.0
..	..	..	..	Renown	28	37	99	9.3	60.5	2	Bl. Sh.	17.1
No significant difference between varieties.												
MISS ROBERTA IRENE PHILLIPS, HERSCHEL												
1B	11	8	C	Marquis	26	32	95	9.7	64.5	2	G. St.	11.5
..	..	..	..	Reliance	23	31	96	9.3	66	2	G.	10.7
..	..	..	..	Reward	19	31	91	9.3	66.5	1	S g.	14.7
..	..	..	..	Thatcher	36	31	94	9	65	2	G.	12.0
..	..	..	..	Apex	30	31	93	9.3	64.5	2	G.	12.2
..	..	..	..	Renown	27	30	93	10	64	2	G.	12.5
Necessary difference—6.1 bushels. (Irrigated).												
DANIEL ALBIN OLSON, PLENTY												
1B	11	9	A	Marquis	33	35	105	8	63	1	S g.	13.9
..	..	..	..	Reliance	41	35	103	9	64	1	S g.	14.5
..	..	..	..	Reward	37	35	91	9	66	2	G.	15.4
..	..	..	..	Thatcher	46	34	100	10	64	3	G.	14.9
..	..	..	..	Apex	31	35	101	6	64.5	2	G.	15.2
..	..	..	..	Renown	45	36	99	10	64	4	V g.	14.9
No significant difference between varieties.												
GEORGE LANDON PINCHBECK, MILLERDALE												
1B	11	9	B	Marquis	15	27	....	10	61	3	Sh. G.	15.4
..	..	..	..	Reliance	19	23	....	10	61.5	2	G.	15.6
..	..	..	..	Reward	10	24	....	10	63.5	3	Sh. G.	16.4
..	..	..	..	Thatcher	17	24	....	10	60	3	Sh. G.	16.3
..	..	..	..	Apex	14	25	....	10	62	1	S g.	15.8
..	..	..	..	Renown	14	24	....	10	60	4	Sh. G. I.	15.8
No significant difference between varieties.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
GORDON ALEX KOKESCH, FUSILIER												
1B	11	10	A	Marquis	24	23	103	10	63.5	2	Bl. G.	15.8
..	..	..	..	Reliance	20	22	107	10	63	2	Bl. G.	15.6
..	..	..	..	Reward	18	22	95	9	65	3	V g.	16.6
..	..	..	..	Thatcher	25	21	104	9.3	63	2	Bl. G.	15.8
..	..	..	..	Apex	18	20	97	9	63	2	G.	16.8
..	..	..	..	Renown	22	21	98	9.3	61	2	Sh. G.	16.7
No significant difference between varieties.												
VERNE TAYLOR, SUPERB												
1B	11	10	B	Marquis	24	28	....	6	63	1 Hd.	....	12.3
..	..	..	..	Reliance	20	26	....	5	63.5	1	S g.	11.8
..	..	..	..	Reward	20	....	....	6	66	1	S g.	14.4
..	..	..	..	Thatcher	25	28	....	10	64	1 Hd.	....	13.2
..	..	..	..	Apex	28	28	....	10	64	1 Hd.	....	13.9
..	..	..	..	Renown	29	30	....	10	63.5	2	S g.	14.5
Necessary difference—4.8 bushels.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

1B 11 5 B Mervin R. Ellis, Merid.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 12

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
HUGH ALBERT RIDDELL, SPRINGWATER												
2D	12	1	A	Marquis	15	20	105	10	65	5	V g.	13.8
..	..	..	..	Reliance	16	15	106	9	66	5	V g.	14.1
..	..	..	..	Reward	13	....	....	....	65	4	G.	15.7
..	..	..	..	Thatcher	18	20	104	9	63.5	4	G.	15.0
..	..	..	..	Apex	13	17	104	8	64	4	G.	16.0
..	..	..	..	Renown	15	19	104	9	63.5	5	V g.	15.8
No significant difference between varieties.												
CARL EDWARD BROUILLETTE, LANDIS												
2D	12	1	B	Marquis	8	....	....	....	62	2	G.	13.3
..	..	..	..	Reliance	15	....	....	....	63	2	G.	12.8
..	..	..	..	Reward	6	....	....	....	66	1	S g.	14.5
..	..	..	..	Thatcher	7	....	....	....	64	1	S g.	14.0
..	..	..	..	Apex	8	....	....	....	65	1	S g.	13.9
..	..	..	..	Renown	7	....	....	....	62.5	2	G.	14.2
Necessary difference—2.8 bushels.												
JAMES PETER SANDERS, SALTER												
2D	12	2	A	Marquis	14	24	94	10	63.5	5	V g.	14.8
..	..	..	..	Reliance	14	22	95	9.3	64.5	4	G.	15.4
..	..	..	..	Reward	7	26	91	9.7	65.5	4	G.	15.3
..	..	..	..	Thatcher	14	23	92	9.7	62	4	G.	15.5
..	..	..	..	Apex	12	24	91	10	63	4	G.	15.4
..	..	..	..	Renown	12	24	91	9.7	62.5	5	V g.	15.7
Necessary difference—2.1 bushels.												
STANLEY DOUGLAS FREWEN, BALJENNIE												
3E	12	2	B	Marquis	23	27	91	9.3	63	3	Sh. G. I.	15.2
..	..	..	..	Garnet	16	31	84	9.7	62	1C.W.	S g.	16.6
..	..	..	..	Reward	14	32	87	9.3	65.5	2	S g.	18.7
..	..	..	..	Thatcher	22	29	88	10	62	3	Sh. G. I.	17.0
..	..	..	..	Apex	19	29	90	9.3	63	2	S g.	16.7
..	..	..	..	Renown	18	29	87	9	62	3	Sh. G.	16.7
Necessary difference—3.7 bushels.												
MISS JEAN GRACE D. SMITH, WILKIE												
2D	12	3	A	Marquis	25	26	....	10	65	3	G.	11.8
..	..	..	..	Reliance	29	28	....	10	66	3	G.	11.5
..	..	..	..	Reward	20	25	....	10	66.5	3	G.	16.4
..	..	..	..	Thatcher	28	25	....	10	64.5	3	G.	13.8
..	..	..	..	Apex	26	26	....	10	65	3	G.	13.6
..	..	..	..	Renown	26	27	....	10	65.5	3	G.	14.1
No significant difference between varieties.												

Cereal variety zone	Dist.	Sub-dist.	Test design-ation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel	Commer-cial grades	Grading remarks	Protein content in per-centage
GEORGE FRANCIS GOSSERT, LANDIS												
2D	12	3	B	Marquis.....	11	....	....	....	60	2	G.	16.4
..	..	..	..	Reliance.....	12	....	....	....	60	2	G.	17.1
..	..	..	..	Reward.....	5	....	....	....	64	1	S g.	16.5
..	..	..	..	Thatcher.....	8	....	....	....	58	3	Bl. Sh. G.	17.5
..	..	..	..	Apex.....	11	....	....	....	61	2	G.	16.5
..	..	..	..	Renown.....	9	....	....	....	58	3	Bl. Sh. G.	16.3
Necessary difference—2.8 bushels.												
ALEXANDER GOTTFRIED, LUSELAND												
2D	12	4	A	Marquis.....	12	....	....	....	60	5	V g. I.	11.9
..	..	..	..	Reliance.....	15	....	....	....	63.5	4	G. I.	11.5
..	..	..	..	Reward.....	12	....	....	....	65.5	3	G. I.	14.7
..	..	..	..	Thatcher.....	19	....	....	....	63.5	3	G. I.	13.8
..	..	..	..	Apex.....	19	....	....	....	65	3	G. I.	13.7
..	..	..	..	Renown.....	16	....	....	....	64	3	G. I.	14.5
No significant difference between varieties.												
GLEN FRANK SCHLOSSER, KERROBERT												
2D	12	4	B	Marquis.....	12	....	....	....	57	3	Sh. G.	12.0
..	..	..	..	Reliance.....	13	....	....	....	57.5	3	Sh. G.	11.1
..	..	..	..	Reward.....	14	....	....	....	65	1	S g.	13.5
..	..	..	..	Thatcher.....	24	....	....	....	61.5	2	Bl. St.	12.9
..	..	..	..	Apex.....	27	....	....	....	64.5	1 Hd.	....	13.1
..	..	..	..	Renown.....	22	....	....	....	63	1	S g.	13.5
Necessary difference—6.2 bushels.												
EARL EVERIT RICHARDS, TAKO												
2D	12	5	A	Marquis.....	14	36	85	10	65	5	V g.	13.2
..	..	..	..	Reliance.....	15	24	85	9	65	5	V g.	13.0
..	..	..	..	Reward.....	9	30	84	7	66	4	G.	15.8
..	..	..	..	Thatcher.....	16	36	85	10	64.5	4	G.	13.8
..	..	..	..	Apex.....	13	35	85	9	64	4	G.	13.4
..	..	..	..	Renown.....	13	32	85	10	62.5	5	V g.	14.8
No significant difference between varieties.												
JAMES J. ZUNTI, LUSELAND												
2D	12	5	B	Marquis.....	28	33	....	9.5	63.5	1	S g.	14.0
..	..	..	..	Reliance.....	30	30	....	8.5	64	2	G. I.	13.6
..	..	..	..	Reward.....	26	33	91	8	65.5	2	G. I.	15.2
..	..	..	..	Thatcher.....	30	31	94	9	62	1	Bl.	14.4
..	..	..	..	Apex.....	26	33	95	9	63	1	S g.	14.0
..	..	..	..	Renown.....	27	32	93	9	61.5	3	G I.	14.2
No significant difference between varieties.												
ALBERT VOLNEY YORK, EVESHAM												
2D	12	6	A	Marquis.....	31	31	102	10	66	1 Hd.	....	13.3
..	..	..	..	Reliance.....	38	31	102	9	66	2	G. I.	13.3
..	..	..	..	Reward.....	20	28	97	10	66.5	1 Hd.	....	16.2
..	..	..	..	Thatcher.....	31	27	99	10	65	1 Hd.	....	13.9
..	..	..	..	Apex.....	29	31	101	10	65.5	1 Hd.	....	13.7
..	..	..	..	Renown.....	29	30	103	10	64	1	S g.	14.9
Necessary difference—4.2 bushels.												
LLOYD GEORGE HAMMELL, SENLAC												
2D	12	7	B	Marquis.....	15	....	....	....	66	2	G.	15.2
..	..	..	..	Reliance.....	18	....	....	....	66.5	3	G.	14.5
..	..	..	..	Reward.....	7	....	....	....	65.5	2	G.	16.9
..	..	..	..	Thatcher.....	15	....	....	....	64.5	1	S g.	15.8
..	..	..	..	Apex.....	14	....	....	....	66	1	S g.	15.7
..	..	..	..	Renown.....	13	....	....	....	65	1	S g.	16.1
Necessary difference—2.3 bushels.												
BERT R. WELLS, MARSDEN												
2D	12	8	A	Marquis.....	27	35	98	10	65	5	G. I.	13.4
..	..	..	..	Reliance.....	34	31	98	10	65.5	5	G. I.	13.4
..	..	..	..	Reward.....	22	34	89	9.3	66	2	G.	16.4
..	..	..	..	Thatcher.....	35	33	96	9.7	64	3	G. Bl.	14.6
..	..	..	..	Apex.....	33	33	95	9	65	3	G. Bl.	14.4
..	..	..	..	Renown.....	29	34	95	9.7	64.5	3	G. I.	15.2
Necessary difference—2.2 bushels.												
CLEMENT COLLINS WAKEFIELD, LILYDALE												
3E	12	8	B	Marquis.....	20	30	....	9.7	63	5	V g.	16.6
..	..	..	..	Garnet.....	26	32	74	8.7	62	5	V g.	16.1
..	..	..	..	Reward.....	28	32	74	7.3	65.5	4	G.	17.5
..	..	..	..	Thatcher.....	31	31	....	8	62	5	V g.	16.9
..	..	..	..	Apex.....	30	29	....	7.7	62.5	5	V g.	17.6
..	..	..	..	Renown.....	31	31	....	9	62	5	V g.	16.3
No significant difference between varieties.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
RONALD ANDREW WEHRHAHN, ROCKHAVEN												
2D	12	9	A	Marquis	19	32	104	....	64	1	S g.	15.1
..	..	..	..	Reliance	18	28	95	....	64	1	S g.	15.2
..	..	..	..	Reward	14	27	95	....	65.5	1	S g.	17.3
..	..	..	..	Thatcher	16	25	93	....	64.5	1	S bl.	16.5
..	..	..	..	Apex	18	28	93	....	63.5	1	S g.	15.7
..	..	..	..	Renown	17	30	93	....	63	1	S g.	16.0
No significant difference between varieties.												
GORDON HAASE, WILKIE												
2D	12	9	B	Marquis	18	27	....	9.5	64.5	5	G. I.	15.5
..	..	..	..	Reliance	21	25	....	9.5	65	4	G.I.	15.0
..	..	..	..	Reward	11	28	....	9.5	65	4	G. I.	17.3
..	..	..	..	Thatcher	19	27	....	9.5	63	4	G. I.	15.7
..	..	..	..	Apex	18	27	....	9.5	64.5	4	G. I.	16.7
..	..	..	..	Renown	16	27	....	9.5	63	4	G. I.	15.6
Necessary difference—2.9 bushels.												
WILLIAM JAMES BRIDGE, R.R. No. 2, BATTLEFORD												
3E	12	10	A	Marquis	19	29	94	10	62.5	3	G.	17.0
..	..	..	..	Garnet	15	31	88	10	62	3C.W.	G.	17.4
..	..	..	..	Reward	13	32	90	10	64.5	2	S g.	19.7
..	..	..	..	Thatcher	21	29	92	10	61.5	3	Bl. G.	18.1
..	..	..	..	Apex	20	31	93	10	63	2	S g.	17.4
..	..	..	..	Renown	20	32	92	10	61	3	G.	18.2
Necessary difference—2.1 bushels.												
BRUCE EVANS SMITH, BATTLEFORD												
3E	12	10	B	Marquis	10	....	....	....	60	3	V g.	15.0
..	..	..	..	Garnet	12	....	....	....	56	5 Rej.	Bl. B sp.	15.9
..	..	..	..	Reward	13	....	....	....	63	2	Bl.	16.3
..	..	..	..	Thatcher	13	....	....	....	60.5	3	B bl.	15.4
..	..	..	..	Apex	16	....	....	....	62.5	2	Bl.	15.8
..	..	..	..	Renown	15	....	....	....	60	3	B bl.	15.6
Necessary difference—2.0 bushels.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

2D 12 6 B Kenneth Harlow Thompson, Cactus Lake. 2D 12 7 A Orville A. Nelson, Vera.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 13

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
MISS EVELYN WHITEHEAD, VISCOUNT												
2B	13	1	A	Marquis	22	37	99	9	60	1	Sh.	12.3
..	..	..	..	Ceres	26	38	98	8.7	61	1	Bl. Sh.	13.4
..	..	..	..	Reward	25	35	91	5.7	65	1 Hd.	....	13.8
..	..	..	..	Thatcher	31	35	94	8.3	63	1	....	14.0
..	..	..	..	Apex	25	33	96	7	63	1 Hd.	....	14.3
..	..	..	..	Renown	29	35	96	8	62.5	1 Hd.	....	13.9
Necessary difference—3.4 bushels.												
THOMAS NOEL CRANE, GUERNSEY												
2B	13	1	B	Marquis	11	32	93	8.7	60	1	S bl.	14.6
..	..	..	..	Ceres	15	34	92	8.6	62	1	S bl.	14.7
..	..	..	..	Reward	11	32	93	9.3	63	1	S bl.	15.7
..	..	..	..	Thatcher	17	30	92	9.3	63.5	1	S bl.	14.3
..	..	..	..	Apex	14	32	93	9	63	1	S bl.	15.4
..	..	..	..	Renown	17	32	94	8.7	61.5	1	S bl. sh.	15.0
No significant difference between varieties.												
REAY RODDICK, COLONSAY												
2B	13	2	A	Marquis	19	37	104	10	64	1 Hd.	....	15.9
..	..	..	..	Ceres	22	38	107	9.7	65	1 Hd.	....	13.6
..	..	..	..	Reward	20	36	105	8.3	67	1 Hd.	....	12.3
..	..	..	..	Thatcher	33	37	104	9.7	65.5	1 Hd.	....	14.1
..	..	..	..	Apex	23	36	107	6.7	65.5	1 Hd.	....	14.3
..	..	..	..	Renown	23	36	106	8.7	64	1 Hd.	....	14.8
Necessary difference—2.4 bushels.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
HARRY BENTON, WATROUS												
2B	13	2	B	Marquis.....	14	....	....	....	56	4	B sh.	17.0
..	..	..	..	Ceres.....	19	....	....	....	58	2	Sh.	17.5
..	..	..	..	Reward.....	13	....	....	....	63	1 Hd.	....	17.5
..	..	..	..	Thatcher.....	23	....	....	....	59	3	B bl. Sh.	17.4
..	..	..	..	Apex.....	20	....	....	....	59	2	Sh.	17.6
..	..	..	..	Renown.....	19	....	....	....	59	2	Sh.	17.2
No significant difference between varieties.												
EDWIN JOHN BITZ, ALLAN												
2B	13	3	A	Marquis.....	5	....	....	....	59	2	Bl. Sh.	15.1
..	..	..	..	Ceres.....	7	....	....	....	60	2	Bl.	15.4
..	..	..	..	Reward.....	5	....	....	....	59	2	Bl. Sh.	15.4
..	..	..	..	Thatcher.....	6	....	....	....	58.5	3	Bl. Sh.	15.3
..	..	..	..	Apex.....	4	....	....	....	60	2	Bl.	15.4
..	..	..	..	Renown.....	6	....	....	....	58	3	Bl. Sh.	15.8
No significant difference between varieties.												
CHARLES HORTON H. HOKANSON, DUNDURN												
2B	13	3	B	Marquis.....	9	32	98	8.3	59.5	2	Sh.	17.2
..	..	..	..	Ceres.....	14	34	97	6.6	60.5	2	Bl. Sh.	17.2
..	..	..	..	Reward.....	....	28	96	6.3	59	2	Bl.	17.5
..	..	..	..	Thatcher.....	11	30	97	6.3	58.5	3	Bl. Sh.	16.9
..	..	..	..	Apex.....	12	32	97	7.7	60	3	B bl. S g	17.4
..	..	..	..	Renown.....	11	32	98	8.3	58.5	3	B bl. Sh.	17.4
(Yields discarded. Considerable grasshopper damage).												
DAVID K. BLACK, BRADWELL												
2B	13	4	A	Marquis.....	9	29	100	10	63	1	S g.	15.7
..	..	..	..	Ceres.....	13	30	96	9	63	1	Sh. Bl.	15.9
..	..	..	..	Reward.....	9	27	94	10	65	1	Bl.	17.2
..	..	..	..	Thatcher.....	12	26	95	9	61.5	1	Bl.	16.6
..	..	..	..	Apex.....	9	31	99	10	63	1	S g.	16.0
..	..	..	..	Renown.....	10	27	96	10	60	2	G. I.	17.0
Necessary difference—1.5 bushels.												
ROBERT E. MENZIE, R.R. No. 3, SASKATOON												
2B	13	4	B	Marquis.....	....	18	....	9	64	1 Hd.	....	16.8
..	..	..	..	Ceres.....	....	19	....	9	63.5	1 Hd.	....	16.4
..	..	..	..	Reward.....	....	21	....	8.3	65	1 Hd.	....	16.6
..	..	..	..	Thatcher.....	....	19	....	9	62	1	S bl.	16.2
..	..	..	..	Apex.....	....	18	....	9	62.5	1 Hd.	....	16.5
..	..	..	..	Renown.....	....	16	....	9	61	1	S bl.	16.4
(Yields discarded. Considerable grasshopper damage).												
WILLIAM BEVERLEY CLARK, DELISLE												
2B	13	5	B	Marquis.....	5	31	94	7.7	54	5	B sh.	15.4
..	..	..	..	Ceres.....	10	30	91	6.6	58	2	Sh.	14.5
..	..	..	..	Reward.....	10	31	92	7	60	1	Sh.	15.5
..	..	..	..	Thatcher.....	16	30	92	8.7	62.5	1	Bl.	14.2
..	..	..	..	Apex.....	23	32	93	8.3	64	1 Hd.	....	14.4
..	..	..	..	Renown.....	20	31	92	8	62.5	1	Sh.	14.7
No significant difference between varieties.												
JAMES GRANT MILLER, LENEY												
2B	13	6	A	Marquis.....	17	29	95	8	62	1	Bl.	15.1
..	..	..	..	Ceres.....	19	28	92	6.8	62.5	1	S g.	15.5
..	..	..	..	Reward.....	12	28	94	7.7	64.5	1 Hd.	....	16.3
..	..	..	..	Thatcher.....	19	27	93	8	61.5	2	Bl.	15.4
..	..	..	..	Apex.....	16	28	95	8.3	62	1	S g.	15.6
..	..	..	..	Renown.....	13	26	95	8.2	60.5	2	Bl. Sh.	15.5
Necessary difference—2.7 bushels.												
WALTER HARVEY FERGUSON, SONNINGDALE												
3E	13	6	B	Marquis.....	18	25	90	9.8	64.5	1	S g.	13.9
..	..	..	..	Garnet.....	15	27	80	10	63.5	2 CW	S g.	15.2
..	..	..	..	Reward.....	16	28	84	9.3	66	1	S g.	16.4
..	..	..	..	Thatcher.....	23	27	85	10	63.5	1	S g.	15.0
..	..	..	..	Apex.....	21	28	85	9.8	64.5	1	S g.	14.7
..	..	..	..	Renown.....	20	27	85	9.5	63.5	1	S g.	14.8
Necessary difference—3.0 bushels.												
WENDELL BAYFIELD THOMPSON, ABERDEEN												
2B	13	7	A	Marquis.....	8	....	89	8.7	57.5	3	B sh.	12.9
..	..	..	..	Ceres.....	21	....	91	9.7	63	1	Sh.	12.6
..	..	..	..	Reward.....	6	....	88	7	65	1 Hd.	....	15.3
..	..	..	..	Thatcher.....	17	....	91	10	63	1	S bl.	13.8
..	..	..	..	Apex.....	25	....	92	9.7	64	1 Hd.	....	13.6
..	..	..	..	Renown.....	24	....	92	10	63	1	Sh.	14.4
Necessary difference—6.1 bushels.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
JOHN WESLEY HUFFMAN, ABERDEEN												
2B	13	7	B	Marquis	11	15	....	9.1	62	3	G. I.	15.2
..	..	..	..	Ceres	14	25	....	8.3	63	1	S g.	14.7
..	..	..	..	Reward	9	21	....	9.5	65	1 Hd.	....	16.3
..	..	..	..	Thatcher	10	21	....	9.8	61	1	Sh.	15.5
..	..	..	..	Apex	13	22	....	9.8	63	1 Hd.	....	15.3
..	..	..	..	Renown	12	17	....	8.8	60	2	Sh. G. I.	15.9
Necessary difference—1.0 bushels.												
J. E. BLAIN, PRUD'HOMME												
2B	13	8	A	Marquis	12	22	87	10	60	1	....	13.2
..	..	..	..	Ceres	15	24	87	8.3	63	1 Hd.	....	14.2
..	..	..	..	Reward	12	25	85	7	66	1 Hd.	....	16.5
..	..	..	..	Thatcher	19	22	86	10	64	1 Hd.	....	14.5
..	..	..	..	Apex	17	26	85	8	65	1 Hd.	....	14.8
..	..	..	..	Renown	17	25	86	8.7	64	1	S g.	15.2
Necessary difference—2.1 bushels.												
ANTON GALGAN, DANA												
2B	13	8	B	Marquis	2	26	95	9.7	*	†	....	13.6
..	..	..	..	Ceres	12	29	93	9.7	54.5	5	Sh. Bl	12.0
..	..	..	..	Reward	11	30	95	10	57	3	P. Sh.	14.1
..	..	..	..	Thatcher	27	29	98	9.3	62.5	1	Bl.	12.9
..	..	..	..	Apex	29	30	98	7.7	64.5	1 Hd.	....	12.7
..	..	..	..	Renown	29	28	98	9.7	63	1	S g.	13.6
Necessary difference—9.3 bushels.												
SLAWKO G. KINDRACHUK, ST. JULIAN												
3E	13	9	A	Marquis	....	....	....	....	63	1	G.	16.1
..	..	..	..	Garnet	....	....	....	....	61	1 CW	....	17.0
..	..	..	..	Reward	....	....	....	....	64.5	1 Hd.	....	17.7
..	..	..	..	Thatcher	....	....	....	....	62	1	Bl.	17.2
..	..	..	..	Apex	....	....	....	....	63	1 Hd.	....	15.9
..	..	..	..	Renown	....	....	....	....	62	1	I.	16.7
(Heavy grasshopper damage. Yields discarded).												
WALTER HEIDECKER, MIDDLE LAKE												
4A	13	10	A	Marquis	23	34	....	7	65	1 Hd.	....	12.4
..	..	..	..	Garnet	20	31	....	7	65	1 CW	....	14.2
..	..	..	..	Reward	21	33	....	6.7	66	1 Hd.	....	16.9
..	..	..	..	Thatcher	27	31	....	7.7	65	1 Hd.	....	14.5
..	..	..	..	Apex	25	33	....	7.3	65	1	S g.	14.6
..	..	..	..	Renown	25	33	....	7.3	65	1	S g.	15.4
Necessary difference—2.6 bushels.												
ALEX KONNER, CARMEL												
3C	13	10	B	Marquis	31	33	92	10	58.5	2	....	16.8
..	..	..	..	Ceres	37	32	89	9.7	60	2	Sh. I.	17.0
..	..	..	..	Reward	39	36	89	10	65	1	S i.	16.8
..	..	..	..	Thatcher	40	33	89	9.7	61	2	Sh. I.	16.5
..	..	..	..	Apex	40	34	92	9	61	2	Sh. I.	17.0
..	..	..	..	Renown	39	36	89	9.7	61.5	3	Sh. G. I.	16.2
No significant difference between varieties.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

2B 13 5 A Fred D. Waldner, Langham. 3E 13 9 B John W. Luciuk, Wakaw.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 14

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
ROBERT GIBB, LINTLAW												
3C	14	1	A	Marquis	2	....	....	....	*	†	....	13.5
..	..	..	..	Ceres	9	....	....	....	46	Feed	B sh G.	13.5
..	..	..	..	Reward	12	....	....	....	51	6	B sh G.	15.6
..	..	..	..	Thatcher	26	....	....	....	60.5	3	Bl. G.	13.5
..	..	..	..	Apex	33	....	....	....	64	1	S g.	13.8
..	..	..	..	Renown	35	....	....	....	64	3	G.	15.1
Necessary difference—7.9 bushels.												

* Insufficient to weigh. † Insufficient to grade.

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
LEONARD WEINHANDL, LINTLAW												
4A	14	1	D	Marquis	3	....	....	....	40	Feed	B sh.	11.5
..	..	..	..	Garnet	4	....	....	....	42.5	Feed	B sh.	9.7
..	..	..	..	Reward	16	....	....	....	52.5	6	B sh. G.	12.9
..	..	..	..	Thatcher	43	....	....	....	62	1	S g.	12.9
..	..	..	..	Apex	33	....	....	....	61.5	1	S g.	13.7
..	..	..	..	Renown	60	....	....	....	63	1 Hd.	....	14.3
Necessary difference—11.9 bushels.												
BERT OTTO ANDERSON, HENDON												
3C	14	2	A	Marquis	....	46	84	9	....	..	....	....
..	..	..	..	Ceres	....	43	93	8	....	..	....	....
..	..	..	..	Reward	....	42	89	7	....	..	....	....
..	..	..	..	Thatcher	....	42	100	8.3	....	..	....	....
..	..	..	..	Apex	....	43	100	7.7	....	..	....	....
..	..	..	..	Renown	....	42	100	7	....	..	....	....
(No yields received).												
FRED BOHL, MARGO												
3C	14	2	B	Marquis	15	42	....	9	51	3	P. Sh.	12.5
..	..	..	..	Ceres	20	44	....	10	59	3	P. Sh. G.	11.8
..	..	..	..	Reward	16	38	....	8	59.5	3	P. Sh. G.	11.8
..	..	..	..	Thatcher	41	40	....	9	64	1	S bl. G.	12.4
..	..	..	..	Apex	35	38	....	7	63	1	S g.	13.1
..	..	..	..	Renown	41	42	....	9	64.5	1	S g.	12.2
Necessary difference—7.4 bushels.												
HARRY HOLDERNESS, QUILL LAKE												
3C	14	3	A	Marquis	15	40	92	8.3	54	5	Sh.	11.8
..	..	..	..	Ceres	23	41	92	8.3	59.5	2	Sh.	12.8
..	..	..	..	Reward	22	37	90	9	64	1 Hd.	....	14.5
..	..	..	..	Thatcher	34	36	96	9	63	1	Bl. S g.	13.3
..	..	..	..	Apex	34	38	96	8	64	1 Hd.	....	15.0
..	..	..	..	Renown	35	38	96	8.3	64	1	S g.	15.3
Necessary difference—4.3 bushels.												
RICHARD JOSEPH MILLER, SINNETT												
3C	14	3	B	Marquis	12	32	92	10	....	..	....	....
..	..	..	..	Ceres	21	36	95	7	....	..	....	....
..	..	..	..	Reward	19	31	87	9.7	....	..	....	....
..	..	..	..	Thatcher	24	33	97	9.7	....	..	....	....
..	..	..	..	Apex	25	30	97	9.3	....	..	....	....
..	..	..	..	Renown	32	33	98	9.7	....	..	....	....
Necessary difference—2.8 bushels.												
TONY MESCHISHNICK, ST. GREGOR												
3C	14	4	A	Marquis	29	40	95	9	61	3	Sh. G. I.	15.3
..	..	..	..	Ceres	34	40	91	6.7	63	3	Sh. G. I.	15.8
..	..	..	..	Reward	35	37	88	7.7	65	2	G. I.	16.3
..	..	..	..	Thatcher	38	37	91	9.3	63	3	G. I.	15.6
..	..	..	..	Apex	33	37	91	8.7	64	3	G. I.	16.1
..	..	..	..	Renown	36	40	91	9.3	62	3	Sh. G. I.	16.0
Necessary difference—4.2 bushels.												
WALTER ANDERSON, LAKE LENORE												
3C	14	4	B	Marquis	22	....	....	....	....	..	....	14.4
..	..	..	..	Ceres	30	....	....	....	....	..	....	14.7
..	..	..	..	Reward	27	....	....	....	....	..	....	15.5
..	..	..	..	Thatcher	31	....	....	....	....	..	....	15.0
..	..	..	..	Apex	31	....	....	....	....	..	....	16.6
..	..	..	..	Renown	32	....	....	....	....	..	....	16.5
Necessary difference—2.2 bushels.												
ROBERT J. HUTCHISON, SPALDING												
3C	14	5	A	Marquis	10	35	100	7.3	56	4	Sh. Sp.	13.0
..	..	..	..	Ceres	19	37	98	9	60	3	Sp.	13.1
..	..	..	..	Reward	16	35	92	7	63.5	3	Sp.	13.9
..	..	..	..	Thatcher	16	37	98	8.7	62	2	S sp.	13.4
..	..	..	..	Apex	19	38	99	8	63.5	2	S sp.	13.8
..	..	..	..	Renown	23	38	100	10	....	..	....	14.3
Necessary difference—5.1 bushels.												
DONALD SMITH YOUNG, PLEASANTDALE												
4A	14	5	B	Marquis	3	28	104	7	....	..	....	....
..	..	..	..	Garnet	7	24	99	6	....	..	....	....
..	..	..	..	Reward	8	28	103	7	....	..	....	....
..	..	..	..	Thatcher	15	29	105	9.3	....	..	....	....
..	..	..	..	Apex	16	30	103	8.7	....	..	....	....
..	..	..	..	Renown	22	34	100	10	....	..	....	....
Necessary difference—3.5 bushels.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
CHARLES WALLACE BOWMAN, LAC VERT												
3C	14	5	C	Marquis	23	46	107	8.8	57	3	Sh.	11.6
..	..	..	..	Ceres	32	46	107	9.3	60	1	Sh.	12.6
..	..	..	..	Reward	30	44	103	9.5	64.5	1 Hd.	....	13.6
..	..	..	..	Thatcher	37	43	106	9.2	64	1 Hd.	....	13.2
..	..	..	..	Apex	32	45	107	7.3	63.5	1 Hd.	....	13.1
..	..	..	..	Renown	27	45	107	9.3	63	1 Hd.	....	13.8
Necessary difference—3.6 bushels.												
EARL S. NOMELAND, NORA												
3C	14	6	A	Marquis	12	....	105	9	45	Feed	....	11.2
..	..	..	..	Ceres	25	....	105	7.7	52	6	....	12.5
..	..	..	..	Reward	26	....	105	8.3	59	3	Sh. G.	13.3
..	..	..	..	Thatcher	45	....	109	9	62	1	....	13.2
..	..	..	..	Apex	40	....	109	8	64.5	1 Hd.	....	13.3
..	..	..	..	Renown	43	....	109	8	64	1	S g.	15.3
Necessary difference—6.4 bushels.												
JOHN WEBER, McKAGUE												
4A	14	6	B	Marquis	14	29	93	9	57	3	Sh.	12.8
..	..	..	..	Garnet	14	34	93	7	60	2 C.W.	G. I.	13.1
..	..	..	..	Reward	12	25	93	8	65.5	1	S g. I.	16.2
..	..	..	..	Thatcher	22	38	96	7.3	63	1	S g. Sh.	15.3
..	..	..	..	Apex	23	32	96	8	65	1	S g.	16.2
..	..	..	..	Renown	25	31	96	8.3	65	3	Sh. G.	15.5
Necessary difference—3.7 bushels.												
CLAYTON A. ANGELL, MERLE												
4A	14	6	C	Marquis	31	48	93	10	56	4	....	9.3
..	..	..	..	Garnet	35	44	85	9.7	61	2 C.W.	....	9.3
..	..	..	..	Reward	34	42	87	10	65.5	1 Hd.	....	11.2
..	..	..	..	Thatcher	54	42	95	9	65	1	Bl.	10.8
..	..	..	..	Apex	53	45	95	9.2	65	1	B p.	11.6
..	..	..	..	Renown	54	45	93	9.5	65	1	S g.	11.4
Necessary difference—4.5 bushels.												
ARCHIE TAYLOR GROAT, ETHELTON												
3D	14	7	A	Marquis	....	33	....	7	....	..	....	....
..	..	..	..	Garnet	....	30	....	4	....	..	....	....
..	..	..	..	Reward	....	33	....	7	....	..	....	....
..	..	..	..	Thatcher	....	31	....	4	....	..	....	....
..	..	..	..	Apex	....	30	....	8	....	..	....	....
..	..	..	..	Renown	....	32	....	9	....	..	....	....
(No yields received). **Note.**—Plot fertilized.												
SELMAN W. BOYD, MELFORT												
3D	14	7	B	Marquis	12	28	102	10	65	3	G. I.	15.5
..	..	..	..	Garnet	7	20	94	9	63	3 C.W.	G. I. Sp.	17.1
..	..	..	..	Reward	11	26	98	10	65	1	S g.	19.1
..	..	..	..	Thatcher	11	26	101	9	65	3	G. I.	17.3
..	..	..	..	Apex	14	30	104	10	64	3	Bl. G. B p.	17.0
..	..	..	..	Renown	12	30	102	10	63	3	G. I.	17.9
Necessary difference—2.7 bushels.												
EDWIN VINCENT WRIGHT, R.R. No. 1, TISDALE												
3D	14	8	A	Marquis	20	24	....	7.7	65	1	....	15.2
..	..	..	..	Garnet	21	22	90	7	65	1 C.W.	....	15.2
..	..	..	..	Reward	16	21	....	6.3	65	1 Hd.	....	17.0
..	..	..	..	Thatcher	22	22	....	7	60	2	Bl. S b p.	16.6
..	..	..	..	Apex	20	23	....	7	63	2	Bl. S b p.	15.7
..	..	..	..	Renown	24	23	....	7.3	64	2	P. Sh.	15.6
No significant difference between varieties.												
DOUGALD H. FOY, BJORKDALE												
4A	14	8	B	Marquis	33	38	....	9.3	61	3	St. S g.	10.2
..	..	..	..	Garnet	32	32	....	8.7	65	1 C.W.	....	10.5
..	..	..	..	Reward	31	35	....	9	66	2	St.	12.4
..	..	..	..	Thatcher	44	34	....	9	65	2	St.	12.5
..	..	..	..	Apex	36	36	....	9	63	2	St.	12.6
..	..	..	..	Renown	45	37	....	9	63	3	G. St.	12.0
Necessary difference—7.5 bushels.												
ELTON W. McDONALD, ARMLEY												
3D	14	9	A	Marquis	18	26	96	6	57	3	L w.	13.9
..	..	..	..	Garnet	19	16	88	4.7	61	1 C.W.	....	13.1
..	..	..	..	Reward	19	22	91	5.7	64.5	1 Hd.	....	16.1
..	..	..	..	Thatcher	32	23	92	6.3	63	1	Bl.	14.8
..	..	..	..	Apex	23	22	103	6.7	63	1 Hd.	....	15.1
..	..	..	..	Renown	31	29	96	8	63	1	Bl.	15.5
Necessary difference—2.9 bushels.												

Wheat Pool District 14—*Continued*

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe.	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
DUNCAN K. TAYLOR, RIDGEDALE												
3D	14	9	B	Marquis.....	13	....	93	8.3	60	1	Sh.	13 0
..	..	..	..	Garnet.....	11	....	95	8	62	3	Bl. G. I.	14.0
..	..	..	..	Reward.....	12	....	95	7.7	65	1	Bl.	15.9
..	..	..	..	Thatcher.....	16	....	94	7.7	64	2	Bl. G. I.	14.3
..	..	..	..	Apex.....	16	....	95	9	64.5	1	Bl.	14.9
..	..	..	..	Renown.....	21	....	95	7.3	65	2	G. I.	16.2
Necessary difference—4.6 bushels.												
BOYD ROBERTS, NIPAWIN												
3D	14	10	A	Marquis.....	20	....	98	....	62	2	Pd. St.	9.9
..	..	..	..	Garnet.....	23	....	98	....	65	1 C.W.	....	10.7
..	..	..	..	Reward.....	22	....	98	....	66.5	1 Hd.	....	12.5
..	..	..	..	Thatcher.....	22	....	100	....	64	1	S bl	10.9
..	..	..	..	Apex.....	27	....	98	....	64	1	S p. Sh. G.	11.9
..	..	..	..	Renown.....	25	....	98	....	64.5	1	S bl.	11.1
No significant difference between varieties.												
STANLEY WALL, PONTRILAS												
3D	14	10	B	Marquis.....	23	31	99	8	61	3	Bl.	14.1
..	..	..	..	Garnet.....	17	25	83	7	60	5	Bl. B sp.	14.5
..	..	..	..	Reward	17	24	85	8	64	3	Bl.	17.1
..	..	..	..	Thatcher.....	27	29	90	8	62	3	Bl.	15.2
..	..	..	..	Apex.....	27	30	90	8	62	3	Bl. B p.	15.8
..	..	..	..	Renown.....	25	31	88	8	61	3	Bl.	17.1
No significant difference between varieties.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

3C 14 1 B John Romanus, Jr., Kelvington. 4A 14 1 C James Smith, Lintlaw.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 15

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
JOHN W. McDIARMID, PRINCE ALBERT												
3E	15	2	A	Marquis.....	....	29	....	10	65	4	G. I.	12.7
..	..	..	..	Garnet.....	....	27	....	10	65	3	G. I.	13.3
..	..	..	..	Reward.....	....	26	....	10	66	4	G. I.	15.3
..	..	..	..	Thatcher.....	22	28	92	10	65	4	G. I.	14.1
..	..	..	..	Apex.....	21	28	92	10	65.5	4	G. I.	13.6
..	..	..	..	Renown.....	21	26	93	10	63	4	G. I.	14.4
(Yields discarded. Samples incomplete).												
LORNE MILTON STALWICK, DOMREMY												
3E	15	2	B	Marquis.....	11	30	100	9	63	1 Hd.	....	13.7
..	..	..	..	Garnet.....	8	26	97	7	63	1 C.W.	....	13.5
..	..	..	..	Reward.....	8	29	98	8.6	65	1 Hd.	....	16.8
..	..	..	..	Thatcher.....	10	28	98	7.3	63	1 Hd.	....	15.1
..	..	..	..	Apex.....	10	26	98	7.7	64	1 Hd.	....	15.1
..	..	..	..	Renown.....	10	28	98	8	64	1 Hd.	....	15.6
No significant difference between varieties.												
PHILLIP PARSON, RED DEER HILL												
3E	15	2	C	Marquis.....	7	20	....	....	61	2	Bl.	16.3
..	..	..	..	Garnet.....	8	19	....	....	61	3C.W.	Bl. Sh.	14.7
..	..	..	..	Reward.....	7	21	....	....	63	2	Bl. S g.	16.1
..	..	..	..	Thatcher.....	8	17	....	....	60	3	B bl.	16.4
..	..	..	..	Apex.....	7	22	....	....	62	2	Bl.	14.9
..	..	..	..	Renown.....	5	22	....	....	59.5	3	B bl.	15.9
No significant difference between varieties.												
EMILE BLANCHARD, DUCK LAKE												
3E	15	3	A	Marquis.....	16	....	....	....	66	3	G. I.	15.4
..	..	..	..	Garnet.....	14	....	....	....	63	2C.W.	S g. I.	15.0
..	..	..	..	Reward.....	10	....	....	....	66	3	G. I.	17.3
..	..	..	..	Thatcher.....	14	....	....	....	64	2	S g. I.	15.6
..	..	..	..	Apex.....	16	....	....	....	64.5	2	S g. I.	15.8
..	..	..	..	Renown.....	14	....	....	....	63	3	G. I.	15.6
Necessary difference—1.7 bushels.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
WILLIAM F. ANDERSON, DUCK LAKE												
3E	15	3	B	Marquis	4	12	79	10	62	2	G. I.	16.9
..	..	..	..	Garnet	3	11	73	8.7	60	2C.W.	G. I.	17.4
..	..	..	..	Reward	4	19	76	10	62	1	S g.	18.4
..	..	..	..	Thatcher	4	10	76	10	60	1	Bl.	18.0
..	..	..	..	Apex	4	13	77	10	61	1	Bl.	17.7
..	..	..	..	Renown	5	11	76	10	60	2	G. I.	17.3
No significant difference between varieties.												
MISS BEATRICE MARIE FRIESEN, ROSTHERN												
3E	15	4	B	Marquis	....	14	85	8.7	....	..	....	16.7
..	..	..	..	Garnet	....	16	79	9	....	..	....	16.2
..	..	..	..	Reward	....	17	85	8	....	..	....	17.2
..	..	..	..	Thatcher	....	16	85	9	....	..	....	17.7
..	..	..	..	Apex	....	19	85	7.7	....	..	....	16.2
..	..	..	..	Renown	....	15	85	8.3	....	..	....	17.0
(Yields discarded. Samples incomplete).												
MISS MYRTLE AMELIA AUG, PARKSIDE												
3E	15	5	B	Marquis	11	....	98	10	60	5	V g. I.	18.4
..	..	..	..	Garnet	13	....	92	9	62	3C.W.	G. I.	17.2
..	..	..	..	Reward	10	....	94	10	62.5	3	G. I.	18.2
..	..	..	..	Thatcher	19	....	98	10	62	4	V g. I.	17.7
..	..	..	..	Apex	15	....	96	10	61	5	V g. I.	17.9
..	..	..	..	Renown	17	....	98	10	61	4	G. I.	18.3
No significant difference between varieties.												
MERVIN LESLIE MADSEN, AVEBURY												
3E	15	6	A	Marquis	....	24	96	8.6	....	..	....	....
..	..	..	..	Garnet	....	25	84	8.3	....	..	..	....
..	..	..	..	Reward	....	24	85	8	....	..	....	....
..	..	..	..	Thatcher	....	22	94	8	....	..	....	....
..	..	..	..	Apex	....	24	97	7.3	....	..	....	....
..	..	..	..	Renown	....	22	90	9.3	....	..	....	....
(No yields received).												
ALLYN WESLEY WOOD, LADDER VALLEY												
4B	15	6	B	Marquis	....	32	96	10	61	3	G. I.	14.5
..	..	..	..	Garnet	....	30	88	10	63	1 C.W.	....	14.8
..	..	..	..	Reward	....	31	90	10	64	2	G. I.	17.9
..	..	..	..	Thatcher	....	29	94	10	62.5	3	G. I.	16.8
..	..	..	..	Apex	....	29	94	10	62.5	3	G. I.	16.3
..	..	..	..	Renown	....	28	94	10	63	3	G. I.	16.5
(Yields rejected. Considerable bird damage).												
ROBERT VICTOR FINES, MONT NEBO												
3E	15	7	A	Marquis	45	30	96	6.6	63.5	1 Hd.	....	15.1
..	..	..	..	Garnet	35	28	88	6.8	63	1 C.W.	....	14.7
..	..	..	..	Reward	31	28	86	7	65	1 Hd.	....	16.9
..	..	..	..	Thatcher	45	28	96	7.8	64	1	....	15.5
..	..	..	..	Apex	39	30	91	7.8	63.5	1 Hd.	....	15.5
..	..	..	..	Renown	38	29	94	7.6	62	1	Bl. Sh.	15.4
Necessary difference—6.9 bushels.												
DOUGLAS KELL, CANWOOD												
4B	15	7	B	Marquis	35	35	105	8.6	65.5	1 Hd.	....	14.7
..	..	..	..	Garnet	22	30	95	8	65	1 C.W.	....	14.3
..	..	..	..	Reward	25	31	99	8	66	1 Hd.	....	16.4
..	..	..	..	Thatcher	39	32	104	9	65	1 Hd.	....	15.5
..	..	..	..	Apex	33	33	105	9	64	1 Hd.	....	15.3
..	..	..	..	Renown	30	30	99	8	64	1	G. I.	15.8
Necessary difference—3.5 bushels.												
JOHN EDWARD MARSHALL, HOLBEIN												
3E	15	8	A	Marquis	11	13	91	....	65	1 Hd.	....	14.5
..	..	..	..	Garnet	10	10	90	....	63	1 C.W.	....	14.0
..	..	..	..	Reward	8	10	90	....	64	1 Hd.	....	17.7
..	..	..	..	Thatcher	13	13	....	....	64.5	1 Hd.	....	15.5
..	..	..	..	Apex	13	13	89	....	64	1 Hd.	....	15.2
..	..	..	..	Renown	10	13	....	....	62	1	G. I.	15.6
No significant difference between varieties.												
DAVID SINCLAIR MITCHELL, WHITE STAR												
3E	15	9	A	Marquis	26	25	95	9	....	..	....	....
..	..	..	..	Garnet	30	25	93	8.3	....	..	....	....
..	..	..	..	Reward	24	24	93	9	....	..	....	....
..	..	..	..	Thatcher	43	27	96	10	....	..	....	....
..	..	..	..	Apex	34	26	96	9	....	..	....	....
..	..	..	..	Renown	34	24	95	9.7	....	..	....	....
No significant difference between varieties.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
THEODORE PACZAY, PADDOCKWOOD												
4B	15	9	B	Marquis	25	32	104	9	65	1	S g.	14.4
..	..	..	..	Garnet	23	26	97	7.3	63	2C.W.	G. I.	15.1
..	..	..	..	Reward	21	24	102	8.7	65	1	S g.	17.5
..	..	..	..	Thatcher	27	30	100	9.3	63	2	Bl. S g.	16.1
..	..	..	..	Apex	25	29	108	9.7	64	1	G.	15.6
..	..	..	..	Renown	23	26	106	8.7	63	3	G. I.	16.3
No significant difference between varieties.												
THOMAS H. A. TUBMAN, BROOKSBY												
3D	15	10	A	Marquis	14	29	100	10	54	5	P. Sh.	12.5
..	..	..	..	Garnet	13	27	92	10	59	2 C.W.	Sh.	11.3
..	..	..	..	Reward	23	28	92	10	64.5	1 Hd.	....	15.1
..	..	..	..	Thatcher	30	29	96	10	64.5	1 Hd.	....	14.4
..	..	..	..	Apex	32	31	99	10	64	1 Hd.	....	15.0
..	..	..	..	Renown	33	30	97	10	64	1	S g.	15.1
Necessary difference—5.0 bushels.												
KINISTINO GRAIN CLUB, KINISTINO												
3D	15	10	B	Marquis	40	28	94	9	66	2	S g. I.	12.1
..	..	..	..	Garnet	....	28	89	9	65	2C.W.	S g.	14.8
..	..	..	..	Reward	29	29	90	8.3	66.5	2	G.	16.6
..	..	..	..	Thatcher	41	26	93	8	65.5	3	G. I.	15.7
..	..	..	..	Apex	40	27	92	9.7	66	3	G. I.	15.2
..	..	..	..	Renown	41	30	93	9.3	65	3	G. I.	15.9
(Samples incomplete. Heavy Grasshopper damage).												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

3D	15	1	B	William Douglas Stevenson, Birch Hills.	3E	15	5	A	Charles E. Leask, Marcelin.
3E	15	4	A	Henry Herbert Riekman, Rosthern.	3E	15	8	B	Frederick Harold Pugh, Wild Rose.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 16

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
EARL WALTER McKELLAR, RADISSON												
3E	16	1	A	Marquis	9	20	90	10	59	3	Sh. G. I.	17.3
..	..	..	..	Garnet	11	26	88	8	60	1 C.W.	....	17.0
..	..	..	..	Reward	7	26	88	8.3	63	1 Hd.	....	18.0
..	..	..	..	Thatcher	11	24	88	10	59	2	....	17.2
..	..	..	..	Apex	8	25	88	9	60	1	....	17.3
..	..	..	..	Renown	8	24	88	9	58	2	Sh. I.	17.1
No significant difference between varieties.												
THOMAS WYATT, NORTH BATTLEFORD												
3E	16	3	B	Marquis	30	38	104	9	66	3	G.	14.6
..	..	..	..	Garnet	30	36	95	9	64.5	3 C.W.	G.	14.2
..	..	..	..	Reward	23	34	98	9	66	3	G.	17.5
..	..	..	..	Thatcher	30	33	98	9	65	3	G.	15.2
..	..	..	..	Apex	33	38	100	9	65	3	G.	15.4
..	..	..	..	Renown	30	35	100	9	64.5	3	G.	15.8
Necessary difference—2.6 bushels.												
CLAYTON ARTHUR EDGELOW, CAVALIER												
3E	16	4	A	Marquis	18	23	111	8.7	65.5	3	G.I.	16.7
..	..	..	..	Garnet	11	21	106	7.7	63	3 C.W.	G.I.	17.7
..	..	..	..	Reward	11	21	108	8.7	65	3	G.I.	19.5
..	..	..	..	Thatcher	18	21	111	8.3	64	3	Bl. G.	18.0
..	..	..	..	Apex	17	24	111	8	63.5	4	V g. I.	17.5
..	..	..	..	Renown	16	22	111	8.3	63	3	G.I.	18.0
Necessary difference—2.8 bushels.												
MISS IRENE GRANT, EDAM												
3E	16	4	B	Marquis	26	29	94	9.3	64	3	G. I.	16.3
..	..	..	..	Garnet	22	30	85	8	63.5	2 C.W.	G.	16.2
..	..	..	..	Reward	19	30	88	8	65	2	G.	18.3
..	..	..	..	Thatcher	20	25	90	9	64	3	Sh. Bl.	17.3
..	..	..	..	Apex	23	33	93	9	63	3	Bl. G.	17.1
..	..	..	..	Renown	25	26	91	9	63	3	Sh. G.	17.7
No significant difference between varieties.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
KENNETH WILLIAM WESSON, MAIDSTONE												
3E	16	5	A	Marquis	17	....	101	9.3	65	3	G.	14.7
..	..	..	..	Garnet	17	....	96	8	64.5	3	G.	15.7
..	..	..	..	Reward	13	....	98	9.3	66	3	G.	18.0
..	..	..	..	Thatcher	25	....	97	9.7	64.5	2	Bl. G.	15.4
..	..	..	..	Apex	22	....	99	8.7	63	3	Sh. G.	15.5
..	..	..	..	Renown	19	....	99	9.7	63.5	3	Sh. G.	16.4
Necessary difference—2.7 bushels.												
JAMES ALFRED RICHARDS, LASHBURN												
3E	16	6	A	Marquis	26	29	....	9.3	64.5	4	V g.	15.1
..	..	..	..	Garnet	19	27	....	8.7	64	5	V g.	15.6
..	..	..	..	Reward	19	26	....	8.7	66	4	V g.	17.9
..	..	..	..	Thatcher	27	27	....	9.7	64.5	4	V g.	16.1
..	..	..	..	Apex	23	24	....	10	64	4	V g.	16.2
..	..	..	..	Renown	23	27	....	9	63	4	V g.	16.3
Necessary difference—3.2 bushels.												
FRANK JOHN SUTTON, MARSHALL												
3E	16	6	B	Marquis	25	31	112	8.3	65	5	V g. I.	15.4
..	..	..	..	Garnet	18	27	107	8.7	64	3	C.W. G. I.	16.4
..	..	..	..	Reward	16	30	108	8.3	66	4	V g. I.	18.4
..	..	..	..	Thatcher	25	28	108	8.3	64.5	4	V g. I.	16.3
..	..	..	..	Apex	20	29	109	8.7	64.5	4	V g. I.	16.2
..	..	..	..	Renown	23	30	109	9.3	63.5	4	V g. I.	16.8
Necessary difference—2 bushels.												
WESLEY SIMPSON, PARADISE HILL												
3E	16	7	B	Marquis	18	24	101	10	65	4	V g.	13.9
..	..	..	..	Garnet	12	21	101	9	63.5	5	V g.	15.5
..	..	..	..	Reward	13	22	100	9.3	65.5	4	V g.	17.2
..	..	..	..	Thatcher	17	21	101	9.3	64	4	V g.	15.1
..	..	..	..	Apex	17	24	100	10	64.5	4	V g.	15.1
..	..	..	..	Renown	20	24	98	9.3	64.5	4	V g.	15.3
Necessary difference—2.9 bushels.												
MILTON ARNOLD PROCTOR, MERVIN												
3E	16	8	A	Marquis	16	28	88	8	64	1	S g.	14.4
..	..	..	..	Garnet	10	24	84	7.7	64	1	C.W. S g.	16.5
..	..	..	..	Reward	8	23	85	8.3	65	2	G. I.	19.1
..	..	..	..	Thatcher	21	22	86	9	64.5	1	S g.	14.0
..	..	..	..	Apex	16	24	85	9.7	64.5	1	S g.	15.2
..	..	..	..	Renown	17	25	84	7.7	63.5	2	G. I.	17.0
No significant difference between varieties.												
JAMES G. COCKBURN, TURTLEFORD												
3E	16	8	B	Marquis	21	27	106	8.7	65.5	3	G.	16.1
..	..	..	..	Garnet	21	26	106	9	62.5	5	G.	15.5
..	..	..	..	Reward	14	25	100	9	65.5	4	G.	18.5
..	..	..	..	Thatcher	21	25	105	9.7	61.5	4	G.	16.4
..	..	..	..	Apex	23	28	106	8	64.5	4	G.	17.1
..	..	..	..	Renown	18	26	102	10	64.5	5	G. P. Sh.	18.5
No significant difference between varieties.												
JOHN HENRY McDONALD, EAST ANGLIA												
4B	16	9	A	Marquis	12	....	104	....	64	5	V g.	14.5
..	..	..	..	Garnet	10	....	95	....	64	5	V g. I.	16.0
..	..	..	..	Reward	11	....	95	....	65.5	3	G. I.	17.8
..	..	..	..	Thatcher	11	....	95	....	64	3	G. I.	15.7
..	..	..	..	Apex	13	....	104	....	64	3	G. I.	15.6
..	..	..	..	Renown	12	....	95	....	63	5	V g. I.	15.3
No significant difference between varieties.												
WILLIAM WALTER SEYMOUR, FOUR CORNERS												
4B	16	9	C	Marquis	38	35	91	10	64	5	V g. I.	12.6
..	..	..	..	Garnet	45	39	91	10	63	5	V g. I.	11.4
..	..	..	..	Reward	38	43	91	10	65.5	4	G. I.	14.6
..	..	..	..	Thatcher	46	35	91	10	64.5	4	G. I.	13.2
..	..	..	..	Apex	39	38	91	10	64.5	3	G. I.	13.5
..	..	..	..	Renown	41	38	93	10	64	4	G. I.	14.0
No significant difference between varieties.												
JACOB A. STOBBE, MULLINGAR												
3E	16	10	A	Marquis	13	....	....	....	65	3	G. I.	13.7
..	..	..	..	Garnet	11	....	....	....	64	1	C.W.	14.1
..	..	..	..	Reward	12	....	....	....	66	1	Hd.	16.1
..	..	..	..	Thatcher	16	....	....	....	64.5	2	G. I.	14.9
..	..	..	..	Apex	16	....	....	....	65.5	1	Hd.	14.5
..	..	..	..	Renown	13	....	....	....	64	1	S g.	14.8
Necessary difference—2.3 bushels.												

Cereal variety zone	Dist.	Sub-dist.	Test designation	Varieties	Yield bus. per acre	Plant height in inches	Days seeding to ripe	Straw strength	Pounds per measured bushel	Commercial grades	Grading remarks	Protein content in percentage
				THOS. HAROLD LATUS, BAPAUME								
4B	16	10	B	Marquis.....	7	16	100	9	63	1 Hd.	....	14.7
..	..	..	..	Garnet.....	6	16	90	9.3	63	1 C.W.	....	16.1
..	..	..	..	Reward.....	4	15	92	9.3	64	1	S g. I.	19.2
..	..	..	..	Thatcher.....	8	16	100	9.7	63	1 Hd.	....	15.8
..	..	..	..	Apex.....	7	18	100	10	63	1 Hd.	....	16.1
..	..	..	..	Renown.....	6	16	92	8.7	63	1	S g. I.	16.1
No significant difference between varieties.												
				ABRAHAM UNRAU, MULLINGAR								
3E	16	10	C	Marquis.....	7	....	....	....	65	1 Hd.	....	14.6
..	..	..	..	Ceres.....	6	....	....	....	64.5	1 Hd.	....	16.0
..	..	..	..	Reward.....	4	....	....	....	65.5	1 Hd.	....	17.9
..	..	..	..	Thatcher.....	6	....	....	....	63	1 Hd.	....	15.9
..	..	..	..	Apex.....	6	....	....	....	64	1 Hd.	....	16.1
..	..	..	..	Renown.....	6	....	....	....	63	1 Hd.	....	16.4
No significant difference between varieties.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail, or Other Causes

3D	16	1	B	Chester Lloyd Ferris, Fielding.	3E	16	5	B	John Angus Currie, Bresaylor.
3E	16	2	A	Edward Philip Hudek, Hafford.	3E	16	7	A	Norman Irwin Preece, Bolney.
3E	16	2	B	Glenford Hilton Layman, Speers.	4B	16	9	B	William Byron Oxley, Cater.
3E	16	3	A	James Douglas Humphreys, Iffley.					

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

DURUM WHEAT

A testing project was also undertaken with durum wheats. Fifteen tests were located in those portions of the province most suitable for the production of this class of grain. The location of the tests is shown in the map illustrated on page **13**. Each test included the Pelissier, Mindum and Golden Ball durum varieties, the fourth type being the common wheat Thatcher. The tests were also sown in a modified latin square, but as only four varieties were duplicated in each section, the size of the test was 45 feet by 51 feet, which allowed for 24 plots of four rows, each ten feet long, twelve inches apart, and also allowed for an outside protection of winter wheat. These tests were all separately randomized. Table No. 24 shows the individual results obtained by each co-operator who conducted one of these tests. A detailed report covering the results of this durum variety testing project will be issued at a later date.

TABLE No. 24

WHEAT POOL DISTRICT 1

Cereal variety zone	Dist.	Sub-dist.	Test desig-nation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel (uncleaned)	Commer-cial grades	Grading remarks	Protein content in per-centage
G. B. COLQUHOUN, GAINSBOROUGH												
2A	1	1	A	Mindum	3	36	105	10	58.6	..	....	....
..	..	..	..	Golden Ball	12	32	108	10	60.4	..	....	....
..	..	..	..	Pelissier	6	34	108	10	62.2	..	....	....
..	..	..	..	Thatcher	10	29	102	10	58.3	..	....	....
Necessary difference—1.9 bushels.												
J. D. ARMSTRONG, OXBOW												
3A	1	3	A	Mindum	2	26	92	9.2	62	..	....	....
..	..	..	..	Golden Ball	10	27	93	9.8	63.1	..	....	....
..	..	..	..	Pelissier	6	28	94	9.2	63.3	..	....	....
..	..	..	..	Thatcher	6	24	90	8.3	60.3	..	....	....
Necessary difference—1.7 bushels.												
ANTON LEPTICH, STEELMAN												
2A	1	4	A	Mindum	....	31	....	10	....	..	....	....
..	..	..	..	Golden Ball	....	28	....	10	....	..	....	....
..	..	..	..	Pelissier	....	30	....	10	....	..	....	....
..	..	..	..	Thatcher	....	26	....	10	....	..	....	....
(No samples received. Destroyed by grasshoppers).												
GLEN H. SLYKHUIS, CARLYLE												
3A	1	10	A	Mindum	28	53	113	8	62.8	..	....	....
..	..	..	..	Golden Ball	28	46	117	9	61.9	..	....	....
..	..	..	..	Pelissier	26	50	119	9	62.4	..	....	....
..	..	..	..	Thatcher	28	38	109	10	62.6	..	....	....
No significant difference between varieties.												
WARREN J. HJERTAAS, WAUCHOPE												
3A	1	10	B	Mindum	1	36	96	10	62	..	....	....
..	..	..	..	Golden Ball	13	32	105	10	62.2	..	....	....
..	..	..	..	Pelissier	9	36	105	10	62	..	....	....
..	..	..	..	Thatcher	1	32	92	10	60	..	....	....
Necessary difference—2.1 bushels.												

WHEAT POOL DISTRICT 6

Cereal variety zone	Dist.	Sub-dist.	Test desig-nation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel (uncleaned)	Commer-cial grades	Grading remarks	Protein content in per-centage
JOHN F. KEITH, BUTTRESS												
1A	6	5	A	Mindum	26	36	93	9	63.3	..	....	....
..	..	..	..	Golden Ball	29	31	98	10	62.9	..	....	....
..	..	..	..	Pelissier	26	32	95	10	63.2	..	....	....
..	..	..	..	Thatcher	31	30	89	10	61.7	..	....	....
Necessary difference 2.9 bushels.												
WILLIS E. ELDER, DRINKWATER												
3C	6	6	B	Mindum	12	30	....	9.1	61	..	....	....
..	..	..	..	Golden Ball	18	30	....	9.2	61.9	..	....	....
..	..	..	..	Pelissier	12	28	....	9.1	62.6	..	....	....
..	..	..	..	Thatcher	7	27	....	9.6	58.1	..	....	....
Necessary difference—1.9 bushels.												

Tests Discarded on Account of Severe Damage by Drought, Pests, Hail or Other Causes

2A 6 6 A David B. Jaques, Briercrest.

Note.—*The figures and letters before each name represent, in order, the Cereal Variety Zone, the District, Sub-District, and Test Designation.*

WHEAT POOL DISTRICT 7

Cereal variety zone	Dist.	Sub-dist.	Test desig-nation	Varieties	Yield bus. per acre	Plant height in inches	Days seed-ing to ripe	Straw strength	Pounds per measured bushel (uncleaned)	Commer-cial grades	Grading remarks	Protein content in per-centage
				LYLE W. LONGMAN, MARYFIELD								
3A	7	1	A	Mindum	15	....	....	....	61.3	..	....	....
..	..	..	..	Golden Ball	13	....	....	....	58.8	..	....	....
..	..	..	..	Pelissier	12	....	....	....	55.7	..	....	....
..	..	..	..	Thatcher	17	....	....	....	60.6	..	....	....
Necessary difference—2.7 bushels.												
				MELVIN J. WHITE, INCHKEITH								
2A	7	4	A	Mindum	14	41	104	8.2	64.6	..	....	....
..	..	..	..	Golden Ball	21	36	102	9.2	63.8	..	....	....
..	..	..	..	Pelissier	17	38	104	9.2	63.5	..	....	....
..	..	..	..	Thatcher	16	31	101	9.5	62.8	..	....	....
Necessary difference—2.7 bushels.												
				JIM ESLER, GRENFELL								
3A	7	7	A	Mindum	15	35	99	8	63.8	..	....	....
..	..	..	..	Golden Ball	29	34	100	9.7	62.7	..	....	....
..	..	..	..	Pelissier	25	38	102	9.7	63.3	..	....	....
..	..	..	..	Thatcher	20	27	98	10	60	..	....	....
Necessary difference—3.5 bushels.												
				FRED W. SHEPHERD, WHITEWOOD								
3A	7	8	A	Mindum	27	48	102	9	....	..	....	....
..	..	..	..	Golden Ball	30	38	104	10	....	..	....	....
..	..	..	..	Pelissier	27	42	105	10	....	..	....	....
..	..	..	..	Thatcher	15	35	97	10	....	..	....	....
Necessary difference—6 bushels.												

WHEAT POOL DISTRICT 9

				DOUGLAS T. BRIDGES, GOVAN								
2B	9	5	A	Mindum	17	38	98	9.5	61.4	..	....	....
..	..	..	..	Golden Ball	18	35	103	9.7	60.8	..	....	....
..	..	..	..	Pelissier	16	35	104	10	63.3	..	....	....
..	..	..	..	Thatcher	8	31	95	9.7	57.2	..	....	....
Necessary difference—2.3 bushels.												

WHEAT POOL DISTRICT 10

				RALPH GILLESPIE, DAVIDSON								
2B	10	7	A	Mindum	6	....	....	....	63.3	..	....	....
..	..	..	..	Golden Ball	12	....	....	....	62.8	..	....	....
..	..	..	..	Pelissier	7	....	....	....	62.5	..	....	....
..	..	..	..	Thatcher	4	....	....	....	60.8	..	....	....
Necessary difference—2.6 bushels.												
				ALBERT PIEPER, SIMPSON								
2B	10	8	A	Mindum	17	40	69	9	61.5	..	....	....
..	..	..	..	Golden Ball	28	38	70	9	62.3	..	....	....
..	..	..	..	Pelissier	28	39	72	9	61.4	..	....	....
..	..	..	..	Thatcher	25	36	67	10	58.9	..	....	....
Necessary difference—2.8 bushels.												

Conclusion

The 1938 wheat variety project proved eminently successful. To new co-operators it demonstrated the method of making an accurate comparative test of varieties and, to all who undertook the work, a close study of the behaviour of the different varieties under the conditions which obtained, was a valuable experience. Despite the adverse conditions existing during the season, in only a few instances were any tests abandoned before the attainment of some useful information. The project again demonstrated the practicability of rapidly securing accurate and exhaustive data pertaining to new varieties. The information gathered in 1938 proved a valuable supplement to that obtained in the previous year and in addition provided much worthwhile data in connection with the reaction of the different varieties when subject to a severe rust epidemic. It cannot be too strongly stressed, however, that the results embodied in this report apply to one year only, when severe rust infection caused serious reactions to the most susceptible varieties, hence the comparative performance of the rust-resistant varieties was better than could be expected in a normal year or if several years' results were considered. Nevertheless the value of rust resistant varieties with other characteristics of a satisfactory nature is unquestioned and in order that verification of this year's results can be obtained the Saskatchewan Wheat Pool is planning another variety testing programme for the coming season. A number of the varieties used in this test will be again included in this project.

* * *

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